

# THE JOURNAL OF MEDICAL EDUCATION

OFFICIAL PUBLICATION OF  
THE ASSOCIATION OF AMERICAN MEDICAL COLLEGES



JULY 1957 • VOLUME 32 • NUMBER 7

- Medical Education at Oxford.....David C. Sinclair**  
**Broadening Public Understanding of Animal Experimentation**  
**by Using Small Animals in the Classroom.....Dietrich C. Smith**  
**Clinical Experience in a Psychiatric Setting for**  
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**The Function of a Department of Genetics in a**  
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II

## The Journal of MEDICAL EDUCATION



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# VOLUME 6 OF THE PRACTITIONERS' CONFERENCES

FROM THE NEW YORK HOSPITAL—CORNELL MEDICAL CENTER  
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The Practitioners' Conference volumes are the published record of a series of clinical conferences conducted informally as bedside teaching clinics at The New York Hospital-Cornell Medical Center for the benefit of physicians in general practice, hospital residents and interns. Each clinic meeting was limited to discussion of one subject, selected for its practical importance to physicians in their daily practice. Each session was conducted under the direction of a moderator and a three or four member panel of experts from medical schools, research foundations and hospitals. At these meetings the panel experts presented the subject and discussed the case histories of patients who were brought in. During these proceedings the physician audience was encouraged to challenge any statement and ask for clarification or amplification. The purpose of each meeting was to bring out the latest progress in research, diagnosis, prevention, treatment and general patient-care. Strong emphasis was placed on bringing out common errors, obscure factors and any pertinent points of controversy. Each session was stenotyped as it progressed and the transcription was later edited by Dr. Forkner and the panelists. References were appended and finally Dr. Forkner added concise summaries. In Vol. 6 is a composite contents of first 6 vols.

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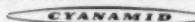
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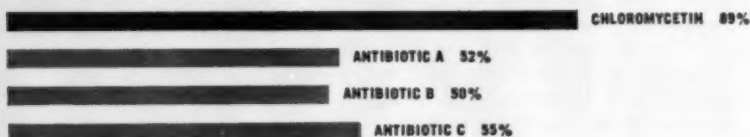
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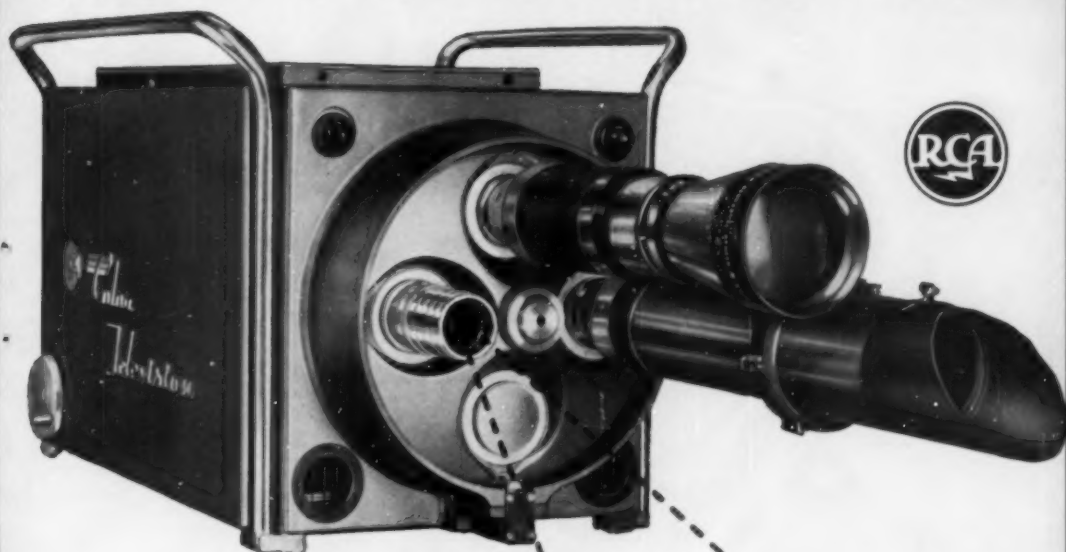
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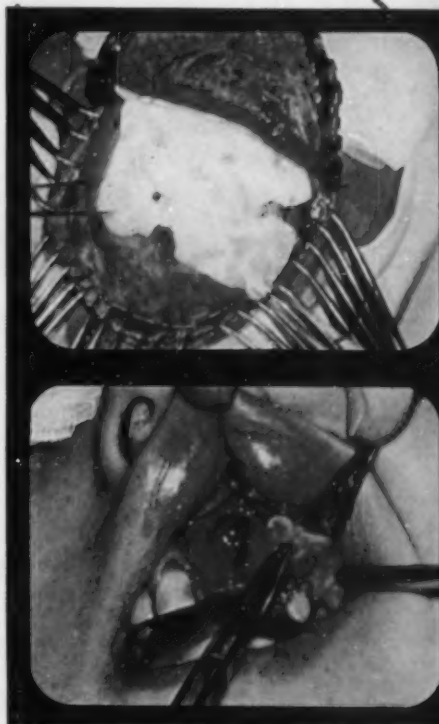


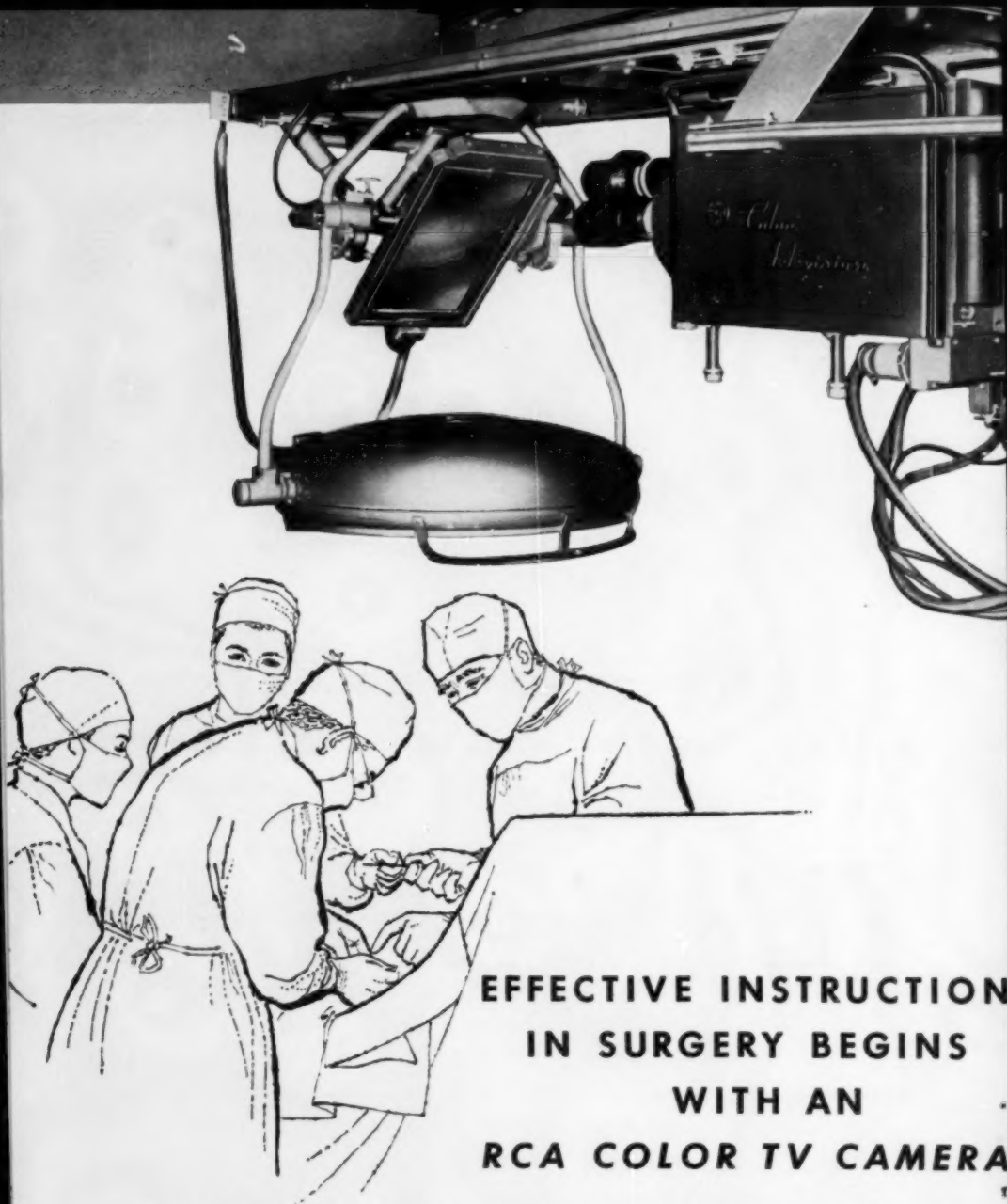
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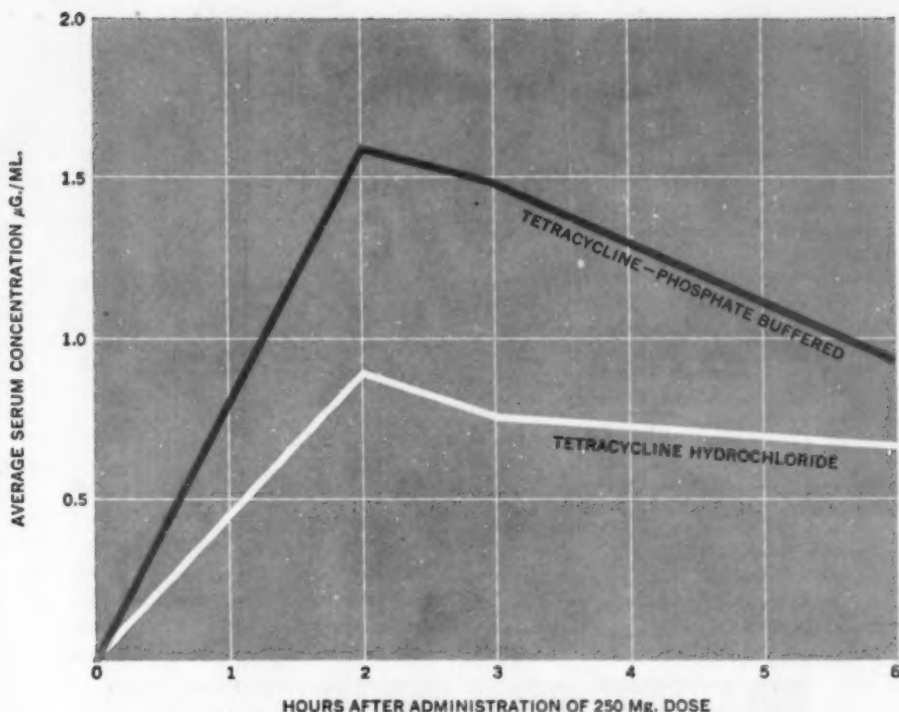
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American Medical Association—1958 Annual  
Meeting—June 23-27, San Francisco.

International Congress on Dermatology—July  
31-August 6; Stockholm, Sweden

International Congress of Psychiatry—Septem-  
ber 1-7; Zurich, Switzerland.

British Medical Association—July 15-19; New-  
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International Gerontological Congress — July  
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World Federation for Mental Health—Aug. 11-  
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**References:** 1. Dinkel, R. M.: *Eugenics Quart.* 3:22 (Mar.) 1956. 2. Grove, R. D.: *Am. J. Pub. Health* 46:592 (May) 1956. 3. *College Study Report: Population Bulletin* 11:45 (June) 1955. 4. Novak, E., and Novak, E. R.: *Textbook of Gynecology*, Baltimore, The Williams & Wilkins Company, 1956. 5. Tietze, C.: *Proc. 3rd Internat. Conf. Planned Parenthood*, 1953.

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\*The American Foundation: Medical Research:  
A Midcentury Survey, Boston, Little, Brown  
and Company, 1955, vol. 1, p. XXXI.

\*\**Ibid.*, p. 600.

# Medical Education at Oxford

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THE MEDICAL SCHOOL of Oxford University is a complicated institution, and it is not always easy for visitors to get a clear impression of how it works. Indeed, it is possible to teach in the school for many years without becoming aware of all the details of how the place is run, and this brief account is therefore necessarily restricted to some of the major points in connection with the teaching of medical students at Oxford.

Oxford University consists essentially of 33 semi-autonomous colleges, each of which selects its own students, is responsible for their education, and houses them for at least part of their stay in Oxford. The corporate body formed by these colleges, a whole greater than the sum of its parts, is the main framework of the university.<sup>1</sup> Each college has its own teaching staff of fellows and lecturers, and maintains a tutorial committee which deals with matters affecting the education of its students. Many colleges admit and tutor students in any of the fourteen university faculties, but it is obviously impracticable for every college to maintain a staff capable of tuition in every subject which can be studied at Oxford, and consequently reciprocal arrangements are made with other colleges. The existence of university departments may be considered an extension of these arrangements, for the teaching given by the departmental staffs is available to the students of all colleges.

College fellows and lecturers may also hold university appointments, and conversely, those appointed initially to a university teaching post may subsequently acquire a college appointment; in neither case is this inevitable unless the university post is a chair. Professors appointed to the charge of a university department are received into certain colleges, where they enjoy the status of professorial fellows, though they do no college teaching. On the other hand, many nonprofessorial university teachers have no college affiliation.

It follows that a given medical teacher at Oxford may have several sources of income and several allegiances. He may receive both college and university stipends, and also fees from other colleges. He may be paid for lectures given to specific bodies within or outside the framework of the university, and he may receive a fee for acting as an examiner in the professional examinations administered by the university. If he is a clinical professor he may have a *distinction award* arising from his position in the National Health Service. It is an anticlimax to add that the university salaries paid to medically qualified preclinical teachers are as low as any in Britain, and that college and university stipends taken together are not usually permitted to exceed a fixed sum.

The preclinical medical departments have, however, a considerable measure of autonomy. Each preclinical

cal professor makes out an estimate for the money his department will require during the following year. If this is approved by the General Board of the Faculties the money is obtained from the University Chest<sup>1</sup>, and the way in which it is spent is at the discretion of the professor. He himself can engage, pay and dismiss junior teaching staff (departmental demonstrators), whose appointments are always temporary and limited. Senior staff (university demonstrators and senior research officers) are appointed on the recommendation of the Board of the Faculty of Medicine and paid by the university; such appointments are reviewed every five years.

#### The medical school

Until recently the medical students who passed through the preclinical departments continued their clinical studies in one of the London hospitals, coming back to Oxford at intervals to sit their examinations. However, since 1947 there has been a small clinical school at the Radcliffe Infirmary, Oxford, and some of the preclinical students now stay to finish their medical education in Oxford. Clinical instruction is given by the staffs of the university departments, and, as in all British schools, by the clinicians attached to the hospital and under the administrative control of the National Health Service. These clinical instructors are vital to the teaching program, and some of them have university titles.

Control of the affairs of the whole medical school is vested immediately in the Board of the Faculty of Medicine, on which are represented the faculty professors and a number of elected and co-opted members. This Board is responsible to the General

Board of the Faculties, which in turn comes under the Hebdomadal Council<sup>1</sup>, the chief administrative instrument of the university. The faculty of medicine has no dean, and the functions of a dean are distributed among several people. Chief of these is the Regius Professor of Medicine, who is the senior professor of the faculty. He is *ex officio* a member of many faculty committees, he is chairman of the examiners in all medical subjects, and he acts for the faculty on state occasions.

The Regius Professor is flanked on one side by a preclinical adviser, and on the other by a director of clinical studies. It is typical of Oxford administration that the duties attaching to these appointments are extremely difficult to discover in any official publication, but the preclinical adviser assists the Regius Professor and acts as counsellor to colleges who have no medical tutors. He also advises the medical school secretariat on problems raised by students desirous of studying medicine at Oxford. The director of clinical studies arranges the courses of study undertaken by the students in the clinical school, allots each student to his clinical tutor, and keeps in touch with the work of the individual throughout his clinical instruction.

#### Admissions

In relation to the size of the university the medical school is small. About 2,300 students matriculate annually, but the intake of the medical students is restricted by a quota system to 65 men and 11 women. The women's colleges work out their own arrangements, but each men's college is given a "guaranteed figure" by the quota committee. The figure varies from one to five on the basis of the



size of the college and its medical traditions; the total number of places so given out amounts to 56. This leaves a "pool" of nine places to be filled by special application from individual colleges, and priorities for such extra places are agreed at a meeting of the committee. The colleges are sometimes irked by the ceiling thus arbitrarily laid on their medical aspirations, and would like to have complete freedom to admit as many as they themselves would find convenient. This is at present impossible because of the lack of accommodation in the preclinical departments; a liberal admissions policy could easily swamp the medical school.

Five colleges do not normally admit medical students, and some of the remaining 28 take them only sporadically. At the other extreme some colleges may in certain years be able to admit as many as six students to study medicine. Each college has a selection committee drawn from the tutorial staff, and the candidates are given an interview and a series of written examination papers. Most candidates apply to several colleges in the hope of increasing their chances. Some colleges group themselves together to administer scholarship examinations, on the basis of which candidates may be awarded scholarships or exhibitions at the college of their choice. As in other British universities, many who do not win such awards receive local or national financial assistance.

When the students pass on to their clinical work a further process of selection takes place. There are only about 32 places in the Oxford clinical school, and at present the majority of students continue in the traditional manner to apply for places in the London clinical schools. Some 60 students are absorbed by the London

hospitals in this way; the applications must be made about a year ahead of the completion of the preclinical course, and again the student may apply to several hospitals. Candidates are selected on the basis of the information on their application forms, supplemented by an interview, and perhaps by a confidential report from their college tutor.

A few of the remainder of the Oxford preclinical students apply for places in the clinical schools of other universities, but the majority continue their clinical work in Oxford. Because of the traditional exodus to London, the Oxford clinical school is not at present filled by these students, and as a result students from other universities are admitted to the clinical course. Just as the Oxford students working in London return to Oxford to take their own professional examinations, so the non-Oxford students at the Radcliffe Infirmary must take the examinations of their own parent universities, though in rare individual instances a distinguished preclinical student from another university may be accepted into Oxford university and be awarded an Oxford degree.

This sort of situation, with Oxford students going to London and students from other places coming to Oxford, has led some of the London medical schools to become rather testy about admitting Oxford students. Confronted by a swollen list of applications, they are apt to point out that many of their Oxford applicants have no need to come London. It is certainly probable that an increasing number of Oxford students will come to the Radcliffe Infirmary as the clinical school there becomes consolidated.

#### Course of study

The Oxford B.M. (Bachelor of

Medicine) is a pass degree, and cannot normally be awarded under present conditions until the student has been admitted as a B.A., which is an honors degree. If the student already has a B.A., this will be accepted, but if not, he can theoretically choose any of the recognized pathways to the B.A., making use of the fact that in Oxford the B.A. can be given for subjects which in other universities commonly attract a B.Sc. In reality however, the choice is very limited because of the time factor. If, as most students do, he selects the course leading to the Final Honour School of Animal Physiology it will be four years from the time he matriculates to the time he can begin his clinical work, and any other subject will take him longer. The most usual alternative is the Honour School of Philosophy, Physiology and Psychology, which can be done in only one year longer.

The medical student is thus admitted initially into the study of the natural sciences rather than into the study of medicine; he begins by passing the preliminary examinations in natural science, and this involves him in physics, chemistry, botany and zoology. These subjects are usually taken before he commences his pre-clinical studies, but he may, at the discretion of his college and the pre-clinical professors concerned, start preclinical work before he has completed the "prelims."

The university year begins in October, and is divided into three terms of eight weeks each. In his first term the student faces anatomy and organic chemistry, and he takes an examination in the latter subject at Christmas. In the second term he begins physiology and biochemistry, and the study of anatomy, physiology and biochemistry continues until the end of the second year, when he sits

for the first professional examination for the degree of B.M. in anatomy and physiology (including biochemistry). Both subjects must be passed together. After this he spends another year working for the Final Honour School of Animal Physiology, and is examined for his B.A. at the end of the year. A few are awarded first class honors, most obtain "seconds" or "thirds," and a select company qualify as "fourths."

In the first term of the fourth year the student has a course of pharmacology, and half the class also take bacteriology this term, for the bacteriology class is duplicated. The second term is devoted to general pathology (special pathology is not taught at Oxford until the clinical period). In the third term those who have not taken bacteriology do so, while the others can migrate to the Radcliffe Infirmary or to London to begin the introductory course which eases them into their clinical studies. Those who go to London, however, may find that their introductory course is run concurrently with a course in general pathology, and that consequently they save no time by doing pathology and bacteriology in Oxford. For this reason a few sometimes take their pathology and bacteriology courses in London instead of in Oxford, though they have to take the Oxford examination.

In his fifth year the student begins the three years of clinical work which culminate in the second professional B.M. examinations qualifying him as a doctor. It is permissible to begin clinical work and even to sit the examinations in medicine, surgery and midwifery without having passed the examinations in pathology, bacteriology and pharmacology, though these subjects must be passed before the degree can be awarded. The preliminary clinical course deals

with case-taking and clinical methods; the student is then allotted to the medical or surgical wards for a specified period, after which he changes over. Midwifery and gynecology follow, and the usual subsidiary subjects are studied as convenient: the content of the clinical course does not differ greatly whether it is taken at a London hospital or in Oxford. Initially, medicine, surgery and midwifery must be taken together in the second B. M., but failure in one subject does not necessarily entail taking the whole examination again.

In the clinical years the student's course of study is determined by a single authority—the Oxford clinical school or his London hospital. There is some variation in the order in which subjects are studied, but no more than is inevitable if small groups of students are to be attached in rotation to different clinical disciplines. In the preclinical stage, however, the students from different colleges are largely controlled by their college tutors, and they may follow very different paths. For example, a student who has failed in his prelims may or may not be allowed by his college to start anatomy. As a result quite a substantial number of students begin the study of anatomy in each of the three terms of the first year, and this number is reinforced by those who arrive at different times from overseas. Those who begin late may sit the first B.M. at Christmas of their third year instead of in June of their second year, but this is naturally a disadvantage, and they may catch up with their colleagues by doing some dissection at another medical school in the vacation. Some students do this even though they are not behind, and in this way they can compress their anatomy and physiology into four terms, and so are able to sit the first

B.M. at Christmas of their second year.

Again, the student need not sit the B.M. before he sits the B.A., and he may, if his tutor approves, leave the B.M. over in the hope that he will get first or second class honors in the physiology B.A., in which case he will be exempted from the physiology and biochemistry portion of the B.M. (If he gets a third or fourth there is no such exemption).

### Variations

Similar variations are possible later. He may take the pharmacology and pathology/bacteriology classes before he takes the B.A., and students who are expected to get a first may be encouraged by their college to do this, since it gives them an extra term (the third term of the pathology/bacteriology year) to work for the B.A. Those who have failed in the first B.M. in June take the examination again at Christmas, and if they pass, are left with insufficient time to work for the B.A. in June. Accordingly, they too take pathology and bacteriology before their B.A. year in order to conserve time.

Thus, there is no set course through the preclinical curriculum, and the students working in a given department may be at several different stages of progress, and progressing in several different directions. It is therefore difficult for any department to plan a series of classes which will take the student step by step through the subject and prepare him for the next. The departments give relatively few explanatory lectures and a minimum of examinations. Each term the medical faculty publishes a lecture list which is available to the college tutors, who are then responsible, within the university regulations, for determining what classes their

charges should attend. Attendance at certain practical classes is compulsory in view of the "recommendations" of the General Medical Council<sup>2</sup>, but for the most part departmental work is optional. The results of departmental examinations have no direct effect on the student; the department may convey its opinion of the student's work to his tutor, and it is for him to take action. The tutor himself often sets his students a series of private examinations, and the results of these "collections" may determine the student's future.

### **College tutor's importance**

The college tutor is thus a powerful figure in the preclinical curriculum. He decides which students shall be admitted, up to a point he decides what path they shall follow through the preclinical course and his is the main voice in the college decision as to whether or not an unsatisfactory student should be allowed to remain in the medical school. It thus happens that students of one college may be treated more severely than those of another if they fall below the standards set by their tutor.

### **The tutorial system**

There are 28 college fellows and lecturers directly concerned with teaching in the faculty of medicine, and 25 of these give college tuition in physiology and/or biochemistry. The reason for this physiological preponderance is obvious, for when nearly everybody takes his B.A. in physiology there is bound to be a demand for physiologists on the college staffs. In fact, until recently there was little tuition in any of the other medical subjects, and it might truthfully have been said of many colleges that their care for the medical student ceased once he had ob-

tained his B.A., and that the B.M. was a tiresome but unfortunately necessary obstacle to the real work of his physiological degree. However, it is now admitted by several colleges that students often have trouble with anatomy, and that some tuition in this subject is desirable. This has led to the appointment of three anatomists as college lecturers, and the employment of others as free-lance tutors. More recently a few colleges have recognized the desirability of providing some sort of supervisory control over medical students throughout the whole of their stay in Oxford, and not merely in one subject of the curriculum. Consequently they have appointed fellows whose duties indeed include the teaching of physiology for the Honour School, but who are also responsible for all the medical students of the college, whatever stage they have reached. There is still no official recognition of the need for tutorials in pharmacology, pathology or bacteriology.

In the clinical school at Oxford the tutorial system is also practiced, but in a slightly different manner. Each student is initially allotted a tutor drawn from the clinical staff of the hospital. When he changes from one clinical "firm" to another he may also change his tutor, but if he so desires he may remain a pupil of the tutor originally chosen for him. In the final stages of his clinical course he can ask to be allotted to a tutor of his own choice. This system of tuition thus cuts across college distinctions, and all tuition is co-ordinated by the director of clinical studies, who himself sees the students at least twice a year to discuss their individual problems.

The pattern of tuition is fairly constant throughout the preclinical "physiological" period. The student has a weekly interview of one hour

with his physiology tutor: for this he usually has to prepare a set amount of work, which he may then discuss or have criticized. He may attend his tutor singly or in company with one of his colleagues; he may be required to write essays or to attempt to explain a given subject to his tutor, to defend a point of view or to criticize his colleague's efforts, but the essence of the matter is that he has a personal contact with someone who is concerned with his individual problems and individual progress. During this period the student may also have a variable number of sessions with an anatomy tutor; some colleges restrict anatomy tuition to one or two terms, but others allow very much more. In the honors year anatomy drops out and the physiological effort is intensified; after the B.A. examination has been taken tuition commonly stops altogether until, if the student continues his medical course in Oxford, it begins again in the clinical school. Clinical tutorials are usually fortnightly affairs, but their principle is essentially similar, and individual attention is the objective.

#### Comment

The preclinical school has represented Oxford medical education for many years, but the clinical school is less than 10 years old; the two have not yet settled down to regard themselves as an entity. This is perhaps partly because they are about half a mile apart, and partly because many of the clinical students are "foreigners" who never went through the preclinical school. At all events, liaison between the two parts of the medical school is sometimes less than perfect.

The form of the clinical school is still evolving. At present it provides an education largely similar to that

given by the London clinical schools, but it is hoped to introduce a more specialized form of training. In evidence to the Goodenough Committee<sup>3</sup> the university stated that it wished to develop a school to provide for students who would become "teachers, investigators, and consultants rather than general practitioners," and the committee considered that Oxford was "well-suited, by tradition, by its actual and potential facilities, and by the outlook of those associated with its medical school, to undertake such an experiment." The Radcliffe Infirmary is a regional hospital which admits a large amount of diverse clinical material, and the smallness of the clinical school means that every student sees a great deal of this material. For a similar reason instruction in small groups is possible, and a tutorial system is already in operation. The clinical chairs were originally founded as research chairs before the clinical teaching school was established, and the existence of a large number of primarily research departments inevitably fosters a scientific approach to clinical medicine. All these factors encourage the idea that students should continue their training in the scientific attitude at the same time they are enlarging their clinical experience, and it is proposed to run straight clinical teaching in parallel with small group teaching by people engaged in clinical research. The tutorial system will be continued, and "free time" is to be introduced, possibly associated with an elective system in which the student can either join in research or do a clinical or laboratory "internship."

But this is in the future. At present the most distinctive features of Oxford medical education are the compulsory honors course and the



control of the individual during the preclinical stages by the tutorial system. Neither is susceptible of direct evaluation. The honors year spent in intensive study is supposed to make the student more mature in his thinking, more critical and more assured in his assessment of new data. This, indeed, is the direction in which the whole atmosphere of the preclinical school tends to lead him. There can be no doubt that for the most able students in the class the honors course is a most stimulating and valuable experience. Yet some doubts may be raised as to the advisability of compelling the whole class to go through this discipline. The quality of the students is far from uniform, and it becomes clear early in the preclinical course that many of them are not of the stuff of which honors graduates are made. This conclusion is also demonstrated by a considerable failure rate in the first B.M. examination. Yet all are pushed through to an honors degree in which there is an enormous disparity between a "first" and a "fourth." One cannot make a silk purse out of unsuitable material, and many of the duller students are actively confused by the attempt to force them into this unnatural metamorphosis. On the other hand, some students whose ambitions lie in the direction of clinical work may treat the honors year rather lightly and are not unduly worried about the class they obtain; they spend their time reading up subjects in which they have a particular interest.

The second B.M. examination is open to a different sort of criticism. Since most of the Oxford students do their clinical work elsewhere, the Oxford examiners are merely performing the work of an examining body; they have no chance of evalu-

ating the student throughout his clinical course or of knowing much of his record. It is correctly coming to be agreed that examinations should form only part of the assessment of students, and a system under which none of the examiners need have seen the student at any time is not in accordance with this trend.

The effects of the tutorial system on the preclinical school are felt in several ways. The preclinical departments cannot get rid of a student, even if he is obviously unfit to study medicine, so long as the college authorities are willing to retain him. Students in the preclinical departments come and go at irregular times and in irregular sequences, often without warning, and it is difficult for a university teacher to take much interest in students other than his own college pupils. The tutorial system reduces the preclinical curriculum to a jig-saw puzzle, the pieces of which can be fitted together by the tutor in almost any order, and while this is sometimes of great benefit to the individual student it may create difficulties for those who teach in the preclinical departments.

Nevertheless, if the tutorial system has certain disadvantages, it has also immense benefits. Nowhere is teaching done on a more personal level; the tutor can get to know his pupils in a way impossible in any other system, and the whole framework and content of preclinical education can be moulded to the needs of the individual. When the clinical teaching has been modified slightly to provide a more direct continuity with the spirit of the preclinical period, Oxford will possess a medical school in which individuality will be cherished and encouraged throughout the student's career. In the century of the common man, when an unenterprising uniformity and an earnest



dullness are too easily accepted as admirable, this is surely something worth having.

#### REFERENCES

1. Handbook to the University of Oxford. London, Oxford University Press, 1954
2. "Recommendations as to the Medical Curriculum." London, The General Medical Council, 1947
3. Ministry of Health: Report of Interdepartmental Committee on Medical Schools. London, H.M. Stationery Office, 1944

#### **La Educación Médica en Oxford**

Este trabajo es un detallado estudio del complejo sistema educativo y administrativo de la Escuela de Medicina de Oxford (Inglaterra).

El autor explica el funcionamiento de la Escuela dentro del intrincado organismo que es dicha Universidad, y describe todas las fases de la carrera de Medicina: el *curriculum* de los estudiantes pre-clínicos y clínicos, sistema de exámenes, la situación y funciones del profesorado y los métodos de enseñanza. Especial importancia tiene la discusión del sistema de Tutores, que desempeña un papel tan significativo en la Educación Médica inglesa, y más aun en Oxford que en otras Universidades. También se destaca el hecho de que es la Escuela pre-clínica la que principalmente da prestigio a la Facultad de Medicina de Oxford, ya que la clínica, de fecha reciente, se halla aun en un estado de evolución y sólo puede acomodar un número muy limitado de estudiantes.

\* \* \*

Separatas de este artículo, en español, podrán obtenerse si son solicitadas por un minimum de 25 lectores.

# Broadening Public Understanding of Animal Experimentation by Using Small Animals in the Classroom

DIETRICH C. SMITH

Secretary, Maryland Society for Medical Research

PERHAPS it is not too bold to say that the enviable position of medicine today is the result of the development and application, during the past 50 years, of the techniques of animal experimentation to such areas, among others, as physiology, pharmacology, microbiology and surgery. Further, as medical research moves in on its prime target for the immediate future, understanding those disturbances of function associated with the aging process, this tool will be used in an ever more exacting manner. The general public which will be asked to support this attack should know how research has come to depend on this approach. This can best be achieved by a carefully conceived plan for public education, actively led by an organization such as the National Society for Medical Research and assisted by allied groups.

Animals are used as food, as a source of clothing, as a source of labor and as an object of sport. Modern man must also come to understand and accept the use of animals in medical investigation, just as he has come to accept the necessity of dissecting cadavers. Here too public misunderstanding created problems which were met by building early medical school buildings

as fortresses with extra thick walls and hidden stairways leading to exits in the rear. Such a building is still in use in Baltimore on the campus of the University of Maryland. But these tactics did not work then, and they will not work now. The public should not be kept in the dark as to the needs of medical research. The medical profession must explain in a sensible and reasonable way why it is necessary to experiment on animals, how it is done, what protections exist against any possible abuses of this practice, how far results on animals can be applied to men, and where and how the animals are obtained.

## Demonstrations

As its latest contribution towards this objective, the Maryland Society for Medical Research two years ago began to distribute small animals to selected teachers for demonstration purposes. The Society claims no credit for being the first to put small animals into the classroom since this practice has been in use in one form or another and for one reason or another in schools all over the country for a number of years. In fact it was the knowledge that this was going on that inspired the Society to

adapt such a procedure to its own educational program. Since the time of its founding in 1950 various techniques have been used to foster its program of public education, but none has proven more popular nor more effective with school children and their teachers than the Small Animal Classroom Project. Since its inception two years ago it has grown steadily in public acceptance until now it is one of the major efforts of the Society. Over 200 projects have been placed in all parts of the state, and the demand continues to grow.

Basically the project consists of supplying classrooms throughout the state with small animals, together with directions for their care and feeding. At first an attempt was also made to supply cages, but it soon became apparent that this would involve too much expense, and the idea was abandoned, especially as an

easily constructed adequate cage can be made from hardware cloth by even the least manually dextrous teacher at a minimum cost. The animals supplied are the rat, the guinea pig and the rabbit. While the original intent was at first to supply a matched pair of animals to science classes where they could be used in the performance of nutrition experiments, it soon became obvious that the demand was much broader than this, and extended down into the elementary grades as well.

Consequently, the lower grades were also included, and here as a rule a single animal was supplied where it was kept as a classroom pet to be used as the teacher decided. The main objective was to teach the proper principles of animal care by checking the growth of the animal with frequent weighings, plotting a growth curve and correlating this



Teacher explaining dietary deficiency experiment being performed with animals and material supplied by MSMR.

## *Broadening Public Understanding by Small Animal Experiments*

with the diet and the environment. Surprisingly enough the benefits went far beyond this point for we had not reckoned with the ingenuity of Maryland teachers. Apparently an animal in the classroom is an unending source of inspiration for all sorts of intellectual and creative activities, including the writing of poetry and the painting of pictures. It was not long before the Society headquarters were receiving letters in childish script describing their classroom pet, together with drawings of the animals in their classroom environments, pertinent remarks about its natural history, descriptions of what a rabbit, guinea pig or rat likes and dislikes so far as food is concerned, what kind of noises it makes, etc. It was obvious that such an animal contributed to the spelling, reading and writing lessons, and it was even helpful in arithmetic.

### **Proper animal care**

As already indicated, one of the most useful areas was in the teaching of proper animal care. The children were shown how cages should be cleaned and how often, what kind of food to feed and in what amount, the necessity of gentle handling if the animals were to accept their new classroom home. Schedules were drawn up showing what duty was expected of each child and on what day. The giving out of pellets or the changing of bedding in the cage became a precious privilege.

Many of these classrooms asked to visit the research laboratories in Baltimore to see how animals of the sort they had were kept under laboratory conditions. During these visits a short explanation was given as to how the animals contributed to human welfare by serving as subjects for experimentation and how neces-

sary it was to keep these animals as healthy and comfortable as possible. They were shown colonies of rabbits kept for experiments on reproduction, guinea pigs used in immunological work, rats serving in studies on obesity, to say nothing of the other laboratory animals from frogs to dogs. There was no difficulty in attracting and holding attention, and the interest stimulated in how animals contributed to the cure of disease carried over into many subsequent classroom discussions. A few teachers even obtained pregnant animals, particularly rabbits, and through their use brought home some of the elementary facts of life.

### **Controlled feeding experiment**

In the higher grades, up to the senior high school or even college level, the project kept to its original objective. Here an attempt was made to run a controlled paired feeding experiment under laboratory conditions to illustrate the effect of omitting some essential constituent from the diet. A matched pair of animals was supplied, more than one if desired, usually 40 gm. male white rats, together with detailed instructions for their care and maintenance, adequate diets and directions, and sometimes material for preparing deficiency diets. Instructions were also given as to how the experiment should be planned, how records should be kept, curves and graphs plotted, and the necessity for careful controls. This last point was one that was particularly stressed as it was felt that training in how to go about collecting significant data was one of the more important goals of the whole project. Too often the experimental portion of a project would be started immediately on the receipt of the animals unless the teacher were

warned ahead of time that frequently the transfer of animals to a new environment so upset their metabolism that a week or two of preliminary observation was necessary before the actual experiment could be begun. During this adaptive period the weight of the animals would be carefully plotted to be sure that each was growing at approximately the same rate and appeared to be in approximately the same state of health. Until these basic facts were established it was a waste of time to try and start the experiment.

After the experiment was started, great emphasis was laid on the desirability of keeping all things the same in both the control and the experimental animals except for the one variable factor. In only this way could one be sure the presence or absence of the variable was significantly correlated with any differences in growth rate between the two animals. If the awareness of nothing else than this was achieved, the project could be considered a great success. As a result of such experiences it soon became obvious that running a matched feeding experiment on a pair of animals was not quite so easy as it looked, and that unexpected pitfalls and difficulties lurked along the way. In this way it was hoped that science students would come to some appreciation of the careful planning, the meticulous attention to detail, the constant evaluation of data that must go on if even the simplest scientific experiment is to be valid. Such insight into the techniques of experimentation might perhaps in some way help build some resistance to the continuous deluge of claims based on "science proves," "doctors show," "research reveals" heard hourly on television and radio.

Even so the nutritional experiment was designed to be as simple as pos-

sible, the growth of the paired animals being plotted and the absence of some essential factor from the diet demonstrated by observing the slower growth in the experimental animal as compared to the control. When such a difference was well established, the diets were switched, and it was shown that the stunted animal began to recover its lost weight while its companion began to lose. Thus the reversibility of the effect was demonstrated.

### Warning

Retardation of growth is, of course, the earliest detectable sign of a deficient diet and one that appears weeks before lesions of a painful and distressing nature are seen. On the instructions which are sent out to all teachers, the following warning is prominently displayed—

#### WARNING

**DO NOT UNDULY PROLONG ANY EXPERIMENT.** In the dietary experiments of the sort recommended a simple failure to gain weight is the first result of the absence of the essential factor and once this is well developed, as it is in three to four weeks, the goal of the experiment has been achieved. The more serious manifestations of dietary deficiencies such as sore eyes, matted or falling hair, irritability, "running in circles," convulsions and death only come later. The Maryland Society for Medical Research feels that such results would defeat the purpose of the experiment and will do all that it can to prevent them from occurring.

The experiment must at all times be under the personal supervision of the teacher who it is assumed will do everything in his or her power to prevent any abuse.

No animals will be issued to any school or classroom except on the signed request of the teacher who is to assume responsibility.

The Maryland Society for Medical Research fully recognizes the responsibility of medical scientists to give the animals entrusted to their care the most humane treatment possible and it expects and assumes

that the teachers entrusted with animals will also accept this obligation. It is hoped that one of the prime achievements of the project will be to make the students participating realize the necessity of giving experimental animals the best of care if reliable results are to be achieved.

Thus the teachers are warned not to carry the experiment beyond the demonstration of a simple stunting of growth and to restore the animal to an adequate diet once this is certain. Such a procedure is pedagogically sound since it not only proves the inadequacy of the diet in question, but it also proves that repair is possible if remedial measures are taken in time. This is a point well worth emphasizing with young and growing children, and even with young adults, as it points up the desirability of public health work to prevent any dietary deficiencies among the population that might be discovered. Obviously the alert teacher will draw instructive comparisons at this point between the effect of diet on growing rats and growing children, a comparison which should bring an added understanding to the problems of community health.

#### **Other dietary experiments**

Different sorts of dietary experiments are outlined in the directions. A vitamin C deficiency experiment can, of course, be run on guinea pigs with comparative ease as most prepared animal foods, unless supplemented with alfalfa or a similar feed, are short in vitamin C since all laboratory animals except the guinea pig and the monkey synthesize their own ascorbic acid. Therefore by simply omitting the usual green vegetable supplement from the pellet diet of a guinea pig, a loss of weight will soon show up as a result of the C deficiency. The importance of pro-

teins in maintaining growth can also be shown by feeding the rat a diet consisting exclusively of carbohydrate and fat, something not too difficult to achieve simply by mixing sugar, starch, oleo and brewers' yeast. Then too rats may be fed on candy alone or exclusively on white bread with instructive results. If questions come up concerning animal care or behavior, as they invariably do, teachers are encouraged to call the Society for help and information. Each teacher in making application for a project signs the following statement: "I agree that at all times it will be my responsibility to see that the animals entrusted to my care are properly treated and housed and that no experiment will be performed upon them other than that authorized by the Maryland Society for Medical Research, and that the directions for the experiment supplied by the MSMR will be meticulously followed in order to avoid suffering by the animals." Thus the Society strives to impress upon those teachers and students doing animal experimentation the necessity for the best of care, both for the sake of the experiment and for the sake of the animal. School children who are involved in an animal project come to know how medical research workers feel about the animals in their charge. The Society also offers to make advice available to anyone responsible for a project, and frequent calls come into the office for help in straightening out some minor difficulty. As a rule these can be handled on the telephone, but when they cannot, either the animal is brought in or we dispatch an investigator to the scene.

#### **"Bugs"**

Anyone who has ever attempted



scientific experimentation knows how progress may be bedeviled and delayed by all sorts of unexpected "bugs" creeping into the work. Small animal projects are no exception and what may seem on the surface a simple and uncomplicated procedure will suddenly become complex. The growth rate of a rat is a remarkably accurate index of its condition and adjustment to its environment. An undue or unexpected disturbance, a change in the location of the cage, too much handling—and in some cases too little handling—all will combine to interrupt the progress of an otherwise steadily rising growth curve. Thus again the teachers and the pupils come to know of the importance of keeping conditions as ideal and as constant as possible.

#### Representatives visit

From time to time those projects which are within reach of Baltimore are visited by representatives of the Society who drop in to see that all is going well and to correct any difficulties which may arise. Miss Esther Barton Crampton, of the Baltimore Animal Aid Association, has been in charge of this phase of the work. Volunteers from the Women's Auxiliary of the Baltimore City Medical Society also help, and both groups report a cordial reception wherever they go. At the teacher's request, someone will come to the classroom and give a short talk and demonstration on the care and feeding of the animals and how an experiment should be conducted. A surprisingly high percentage of those having projects ask for such instruction, and the Society is at times hard put to keep up with the calls. All in all it has been a remarkably gratifying experience to work with such enthusiastic and interested people.

The only source of discontent is the knowledge that with more money and more manpower a great deal more could be done.

#### Other results

Obviously other things result from the project than the dissemination of knowledge regarding the use of animals in scientific and medical research. Among some of these is the arousal of interest on the part of high school students in work of this sort, and in these days of manpower shortage in scientific laboratories it is felt that any advance in this direction is a distinct gain. The Society owns numerous films which depict various aspects of medical research, some of which are frankly recruitment films, such as its own "Girl with the Lamp" produced by the Maryland Society for Medical Research, and "Career Medical Technologist" produced by the American Society for Medical Technologists. "Frontiers in Medical Research," another MSMR production, shows the inside of several medical research laboratories in Baltimore, and gives some idea of what goes on in them, and how animals, especially dogs, are used in experimentation. The two projects, of course, create considerable demand for this film as well as others in our film library. In a very real way they integrate the whole educational program, and bring into sharp focus the role of animals in advancing medical knowledge.

As mentioned before, the presence of a project in the classroom stimulates a desire to visit research laboratories where animals are used on a large scale, and many such tours are arranged through the offices of the Society. These groups from the high schools are given demonstrations and brief talks by the investi-

gators involved, of the work that is going on in their laboratory. If animals are used, these are often shown as well. Naturally most of the tours originate within Baltimore, but some come from a distance, and classes have been known to travel as far as 100 miles away to make the trip.

### **Summary**

In summary then, it is obvious that the ramifications of such projects are considerable and open up all sorts of possibilities for increasing an understanding of what goes on in medical research among young people. In addition they stimulate recruitment of scientific personnel, they propagate knowledge of what is a scientifically controlled experiment, and they underline the necessity of optimal care in handling animals used in scientific experimentation. Any medical school or medical research group in any community would probably find it well worth their while to try something similar in their own area. Only if this is done preparation should be made for an enthusiastic response and someone ready and willing selected to serve the requests which inevitably will come in ever increasing numbers.

### **Experimentación con animalitos en las Escuelas**

Aunque es indudable que la Medicina debe

gran parte de sus progresos a la experimentación con animales, sobre todo en el campo de la Fisiología, Farmacología, Microbiología y Cirugía, existen aun entre el público en general muchos erróneos conceptos en cuanto al uso de animales en los laboratorios, y pocos se dan cuenta cabal del grado en que la investigación médica depende hoy día de éstos. Con el fin de ayudar a una comprensión mejor de esa situación, la *Society for Medical Research*, de Maryland, empezó hace 2 años a distribuir pequeños animales entre maestros de ciencia seleccionados, para propósitos didácticos. El objetivo inmediato era enseñar en las clases los principios básicos del cuidado y control científicos de los animales (observación del desarrollo, verificación del peso, alimentación, y determinación de la relación entre dichos factores y el medio ambiente). Unos 200 proyectos de experimentación fueron distribuidos entre las escuelas del Estado de Maryland, al principio sólo las secundarias; pero poco a poco las clases elementales fueron incluidas también. Todos los aspectos de ese experimento y sus efectos pedagógicos son descritos en el presente trabajo. El autor cree que los resultados han sido de mayor alcance de lo que se pudo esperar, pues no solamente se han aumentado los conocimientos, y se ha contribuido a una comprensión mejor del uso de animales de experimentación en la investigación científica y de los principios en que ésta se basa, sino que se ha contribuido a despertar un vivo interés en tales trabajos científicos, lo cual, a la larga, podría ayudar a remediar la actual escasez de expertos trabajadores de laboratorio. Por todas esas razones, el autor sugiere que vale la pena que el experimento sea imitado y ampliado por las Escuelas y Sociedades médicas de otros Estados del país.

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Separatas de este artículo, en español, podrán obtenerse si son solicitadas por un minimum de 25 lectores.

# Clinical Experience in a Psychiatric Setting for Sophomore Medical Students

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PSYCHIATRY IN MEDICAL education has in recent years presented a dilemma of increasing proportion. The immensely expanding mass of medical knowledge, among other complex factors, has made revision of medical curricula imperative. Some schools, for example Western Reserve, University of Pennsylvania, University of North Carolina, and the new Albert Einstein Medical School, have attacked this problem by attempting to humanize scientifically the application of medical knowledge. Efforts have been made to eliminate the artificial cleavage between the preclinical and the clinical years.

This paper describes a clinical program for second year medical students in the department of psychiatry of the University of California in San Francisco. It has operated for two academic years. Although not elaborate, this program has functioned effectively within existing clinical facilities by using the eagerness of medical students for clinical work and the readiness of young psychiatrists to teach what they have recently learned. We believe that a relatively simple plan such as this one can be effective in preparing physicians to meet more of the psy-

chiatric problems which they inevitably encounter in medical practice.

Each student is assigned one psychiatric patient with whom he works voluntarily in his extracurricular time in the outpatient department of the Langley Porter Clinic. Each student sees his patient in weekly one-hour interviews throughout most of the academic year. Third- to fifth-year psychiatric residents and fellows as well as a few psychiatrists recently graduated from training serve as individual supervisors. They schedule their hour with their students at weekly intervals. In the two years of the program's existence a total of 36 students and 28 supervisors have participated.

Each student is introduced to his patient as a "medical student" who will be working with the patient under the supervision of one of the clinic doctors. The patient is told that the student and supervisor will see the patient together for a few interviews, after which the student will continue with the patient alone, seeing the supervisor separately. Usually not more than five joint interviews are held before the student sees the patient alone. In the first of these interviews in most cases

the supervisor is the active interviewer with the student sitting by. In the next interview or two the student does most of the interviewing with the supervisor taking an active part only when needed.

#### The program's first year

*The students.* In the first year of the clinical program, 30 of the 73 sophomore medical students applied and themselves made a random reduction of their number to fill the 15 openings.

*Orientation meetings of students.* At this time the students had had no instruction in either physical diagnosis or psychiatry, but were beginning a survey course in psychiatry composed of lectures and quiz sections. They were informed about the physical set-up of the clinic, the mechanics of scheduling, the keeping of records, the supervision and their obligations regarding patients. The students quickly raised a number of questions, for example:

- (1) Why is the course being offered?
- (2) What does the supervisor do?
- (3) What do we do in the supervisory hours?
- (4) Should we call ourselves doctor or mister?

These questions were answered directly, but the students were encouraged to discuss other of their questions, such as:

- (1) How do we interview?
- (2) What do we do if the patient asks something we don't know?
- (3) What if the patients want advice and we don't know what advice to give?

The students appeared anxious about what might be expected of them in the initial work-up of their

patients. Despite reassurance that the supervisor would perform the work-up, including the physical examination, with the student present, the students emphasized that they had not seen patients before and that they would need a great deal of help with them. They were told that no student would see his patient alone until he and his supervisor agreed that he was ready to do so. Nevertheless, the students insisted on another meeting for further discussion. In the meantime they were to meet their supervisors.

Only three students appeared for the second meeting. Inquiry failed to reveal the reason for the change in attitude and the meeting was rescheduled. At that meeting 12 students were present. The absent three sent word that they had met their supervisors and did not need to come. The students present also agreed that their questions had been answered by their individual supervisors. The group's decision against further meetings until the end of the semester was accepted.

Then, as they were ready to leave one student revived the meeting by expressing doubt as to whether he could possibly help his patient, who was sophisticated psychiatrically. The student felt that the patient knew more than he did. Instant interest in this problem and active group discussion followed, with one student even asserting that it would "damage" beginners to work with "patients who can't be cured." The discussion revealed a fear of being inadequate to meet demands of patients with whom they had had only initial contact. The students tried to reassure themselves that perhaps all a patient needed was "friendship" or a "good listener," but they were dissatisfied with the obvious superficiality of their conclusion. It was

necessary for a faculty member to end the discussion by interpreting the students' concern about what they fancied might be expected of them by their patients and the faculty, and perhaps by themselves in their new role as doctors. The students then abandoned their previous decision against further meetings. They agreed that they wanted further group discussion of the problems they were encountering and they set subsequent meeting dates for early December, mid-January, mid-February, and late May.

*Later meetings of students.* Spontaneous case discussions in later meetings showed the students struggling with the fundamental problems in therapy common to beginning therapists: for instance, how to deal with silences; whether to ask specific questions in interviews; how to know when to redirect a patient's question back to him for further exploration; how to handle the patient's personal questions about the therapist; how to recognize possible covert meanings of interview material.

The working through of such problems is typified by the following example of student discussion about the interruption of appointments during Christmas holidays. One student reported that he had discussed the anticipated break with his patient at the suggestion of his supervisor.

*Student B:* "Why is that necessary?"

*Student C:* "The patient might be getting ready to tell you something important and feel thwarted that he couldn't—I think it is a minor point though."

*Student L:* "I don't think it is too minor. It could mean to the patient you are not very interested."

*Student R:* "I think missing inter-

views with patients is important. My patient cancelled an appointment and it had an effect on me. The reverse would be even more marked. In any case, as a matter of courtesy and accommodation, we should let them know ahead of time."

*Student B:* "You mean courtesy in the doctor-patient relationship?"

*Student W:* "Courtesy and a therapeutic attitude are not mutually exclusive."

*Student P:* "If a patient is not disturbed, I should think he could take it as a matter of course. They know we have other commitments and can't spend all our time with them."

*Student R:* "Mine feels I have an obligation to him. When I made the first appointment for a Wednesday, he said, 'Sign me up for all your Wednesdays.' We can't expect them to know all the things we have to do."

*Student M:* "It all boils down to the fact that he is looking for acceptance all the time. Changing his appointment might appear like a slight rejection."

Ordinarily the instructors did not raise questions at the student meetings, but certain questions were posed at a meeting early in the second semester, to learn more about the students' progress in understanding the therapeutic process. The following six questions were formulated:

- (1) Is the ratio of your verbal participation in current interviews with your patient changed as compared with the beginning interviews?
- (2) Have there been changes in the kinds of responses you make to the patient?
- (3) What kinds of things do you listen for when the patient talks?

- (4) How do you feel about silences in the interviews?
- (5) Have there been any changes in your attitude about the functions of a therapist?
- (6) Have you been able to use your awareness of your own emotional responses to understand your patient's covert communications?

In their discussion most of the students showed little real comprehension of those questions which pertained to their functions as participants in therapy; but all of them readily grasped the connotations of the questions that dealt with their understanding as observers. A few did show awareness of the therapeutically corrective possibilities in the doctor-patient interaction. For example, question three, about what things they listened for, produced the following discussion. It is to be noted that at times the students echo their supervisors in such phrases as 'meaningful material,' or 'expectant listening.'

*Student B:* "I minimize what the patient says and listen for emotions. If you listen to what the patient says you confuse yourself."

*Student P:* "My patient repeats certain material at each interview, but after he gets through with this, he generally talks about his relationships with other people. That's what I listen to."

*Student G:* "I look for opinions, feelings, and emotions."

*Student W:* "My patient started out with meaningful material about his early life and I was quite interested in hearing this. Now if the patient tends to get tense he goes back to repeat the material about his grandmother or someone else who was important in his early life. I've

been looking for material about my patient's relationships with other people and I've tried to consider his relationship with me as a therapist. As an example, one of his ways of relating is by flattery and one day when he was doing that with me, I asked him if he felt he had to compliment me."

*Student A:* "I watch for changes in attitude and outlook on life—also the patient's attitude toward me. I think he wants to be on a level as friends rather than in a patient-doctor relationship."

In contrast the discussion of question five indicated much uncertainty about the nature of the therapist's relationship to the patient.

*Student R:* "Formerly I thought of psychotherapy as being more interpretative, more comparable to physical diagnosis and now I feel that expectant listening is the basis of therapy rather than anything active."

*Student W:* "If the therapist would have to take over and give advice and direction, I think that would destroy the usefulness of the doctor as a therapist after that."

*Student P:* "Well, I don't think the intervention of a therapist and the more passive attitude of expectant listening really exclude each other. I think the therapist can have a friendly attitude and still be objective."

*Student E:* "Friendly isn't the right word. I think 'sympathetic' would be better."

*Student G:* "You could even dislike a patient but if you were sincerely interested, you could be a therapist for him."

During the year instructors, as a rule, left the working out of problems to the students. Only when a student was seen to be embroiled in critical



difficulties with his patient was this pointed up for further clarification with his supervisor and the particular supervisor alerted.

*The supervisors.* Like the students all of the supervisors volunteered for the program but time was provided in their regular clinic schedule. The supervisors met after each student meeting.

*Early meetings of supervisors.* At the first meeting of the supervisors the general plan of the program was presented, including the fact of its trial basis. Some immediately inquired about the motives of those organizing the program. Others suggested that perhaps students were taking this method to seek solutions to personal emotional problems. There was a general uneasiness in the group, and many doubts were expressed about the methods to be used. They questioned whether the students should sit in while the patient was being worked up, and recalled their own apprehension when they were "dumped" with their first patient. This brought laughter and a remark about the jump of the student from his first "patient," a cadaver, to his second, a psychiatric patient.

One supervisor brought up the point that some patients might be too disturbed for students to work with. Another supervisor, who had sat in on the students' meeting and felt that the students viewed the project "with fascination and horror," proposed that we might be overestimating the students' readiness for such work. Others wondered if the anxiety of the students might not be alleviated by assigned reading and by several individual supervisory hours before beginning the work-up. One of the supervisors countered with the statement that "clinical experience" is what the students need, and the

supervisor's initial job is to help the student be comfortable with the patient. After a short silence, one supervisor said abruptly, "Aren't we attempting to deal with our own anxieties here? We can find some better way of doing it than by assigning reading to the students." The group then recognized their own identifications with the role of the student and their hesitancy at making the transition to that of teacher and supervisor.

Again in their second meeting the supervisors expressed concern about their adequacy as preceptors, but spent the rest of the hour exchanging their experiences in handling some of the practical problems in the program.

*Later meetings of the supervisors.* As the year progressed, an interest in broader concepts of teaching and supervision developed. These had mainly to do with the difficulty of conveying theoretical ideas to the students; the perspective gained on the patient-therapist relationship by observing the transactions between the student and his patient; and the controversial issue of permitting the student to use the supervisory hours for therapy for himself as a derivative of sometimes focusing attention on the therapist's reaction to the patient.

By the end of the first year the content and tenor of the supervisors' meetings had shifted considerably. At the final meeting they discussed the ways in which the students had used the supervisory hours. They again explored the knotty question of how much direct discussion of the student's own problems to allow in supervisory time. They were aware that their own interests and feelings gradually influenced what the students would bring to these hours. They were both surprised and

## *Clinical Experience in a Psychiatric Setting*

pleased that the students had done well with their patients. They felt humble, too, as they recognized the students' potentialities and compared their performance in the doctor-patient relationship favorably with those of beginning clinicians of any age or degree of academic training. As they reviewed the program they assessed its achievements, and made recommendations for the coming year. Later several supervisors wrote out a formulation of the goals and methods of such a program. In some instances these discussions of the year's experience showed careful thought and individuality. A detailed report of the program from the standpoint of the trainee supervisors is planned.\* Each supervisor made recommendations for handling of the case assigned to his student at the end of the academic year. Some cases were closed and others were re-assigned to other therapists in the Clinic.

*The instructors.* The vital matter of continuing coordination of the program was in large part effected by the instructors through the group meetings of both the students and supervisors, and to a lesser extent by a constant ear-to-the ground attitude in casual contacts with individual supervisors and students. Such details as current case status, clinical record requirements, and the regularity of student-patient and student-supervisor appointments were checked in the meetings.

The importance of the coordinating functions was illustrated when the instructors heard of discouragement

among the students near the end of the first semester and the program was in danger of breaking up. A meeting of the instructors with the supervisors revealed that some students had advanced lack of time because of vacation, pressure from required courses, and imminent examinations as reasons for wishing to drop their cases. Some supervisors were already aware of underlying anxiety produced in the students by the increased freedom with which patients, as therapy progressed, were beginning to express aggression and dependency needs. With the question having been raised of latent and manifest influences in the students, one supervisor suggested that similar forces in the supervisors might be affecting the course of the program. The rest ignored this suggestion, but some of them had clearly been pre-occupied with changing services or facing the prospect of finishing training. Their discussion also showed more concern, now that they had left the rather definitely structured initial phases of treatment, as to how well-equipped they were to help the students understand the elements of the therapeutic process.

As an outcome of these clarifications, both supervisors and students continued their work with renewed interest. No cases were dropped.

*Students' appraisal.* The students' appraisal of the program was derived by inquiry at their last meeting, and from questionnaires filled out at the end of the second semester and again 10 months later.

At the time of the final meeting and the first questionnaire the students all agreed that the experience had been useful and that if they had to choose again they would want to participate. Some thought that the value of the experience might be

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\**Teaching as Training for Psychiatric Residents. Diseases of the Nervous System.* In press.

disproportionately greater because it was their first opportunity to see a patient. Typically, they said that they felt more self-confident in working with other patients whom they began to see elsewhere in their second semester; that they had learned something of the doctor-patient relationship; and that the experience had clarified their ideas and corrected some misconceptions about psychiatry and psychotherapy.

In response to a question about specific difficulties, they said that "not knowing how a doctor is supposed to act" had made them uneasy at first. In addition some found it hard to know "what was important and relevant in interviews," and several were aware of difficulty in accepting help from consultants.

Suggested changes for the most part centered on some expansion of the clinical program in one way or another, either by including more students, or by specifically relating the content of the didactic course to the clinical program. In general they tended to depreciate the value of didactic work, sometimes in scathing comments.

As for their experience with the supervisors, the students uniformly praised its usefulness; their questionnaires contained exclamations such as "Excellent!!!" They were surprised to learn how cognizant psychiatrists are of the problems of students in medical school. It was noted particularly earlier in the year that a student would occasionally refer to his supervisor as "my psychiatrist." Some of their comments suggested, however, that they were more at ease with the less experienced supervisors.

By the time of the second questionnaire, the students again agreed in their high evaluation of the second year clinical program. They continued

to devalue classwork by contrast; and indeed they extended their depreciation of didactic work to courses outside of psychiatry. The spectrum of opinion had increased in the second questionnaire. Despite his approval of the program, one student said he was disappointed with a therapist's ability to help a patient with psychiatric problems. Another, upon his request, was continuing to work with his patient and supervisor. A few seemed to overvalue the program, as illustrated in quotations from two questionnaires: "Not merely useful, but beautiful." "It has taught me to scrutinize carefully, and to evaluate and analyze a patient in an unbiased manner—above all, it has taught me to think critically about all things I see and hear."

#### **The second year of the program**

In general the course of the program of the second year paralleled that of the first, but with a few significant differences.

In the second year of its operation the program was larger and to some extent less cohesive. The instructors felt it necessary to require attendance at monthly student meetings in order to coordinate the expanded program. Monthly supervisor meetings were also scheduled and attendance was encouraged though not required.

From the beginning the students showed a more assured attitude than had their predecessors. All had heard about the program from the students of the previous year. More than 30 students applied and they competed aggressively for assignments, rather than drawing lots to reduce their numbers. One small group requested the faculty to limit the program to those who intended to become psychiatrists. When this request was de-

nied, they persuaded several of their fellow-students to withdraw in favor of the "future psychiatrists" and even attempted further eliminations by circulating the rumor that any student accepting patient responsibility would thereby forfeit his Christmas vacation.

In all, 22 students could be accommodated. One student dropped out of the program almost immediately and a second did so in the middle of the year. Both students were partially supporting themselves by outside jobs and gave their overloaded schedules as their reason for withdrawing. It should be noted that the first student, before dropping out, had requested a change of supervisors. The supervisor of the second student was one whose student of the previous year had nearly dropped out. The second student had had interviews with his increasingly anxious patient during the Christmas vacation but supervisory hours were missed.

In the second year several supervisors of the first year served again, and there were additions to the group. The air of sophistication among the experienced supervisors was apparent. The beginning supervisors, instead of discussing their problems openly, tried to emulate the "old hands." Although the trends of the meetings followed those of the previous year, the larger and more heterogeneous group required closer supervision and more stimulation from instructors.

Coordination with the lecture course in psychiatry was attempted. To each quiz section of the regular survey course in psychiatry, participants from the voluntary clinical program were assigned, and late in the year some of them presented their cases to the quiz sections. Many students in these sections felt that the case pre-

sentations were not of much value, that they should be made by residents or others with more experience than the student, and that the patient's appearance before the group was possibly harmful to him. They also wanted more authoritative commentary on the case material. A few students, however, as well as the supervisors and the quiz section leaders, believed that the case presentation by the student was a valuable experience for all of the students and a worthwhile adjunct to the quiz section work.

Three main problems arose in the second year. Although the program was only a third larger than in the previous year, it was more unwieldy, and closer administrative control was necessary. The less permissive management, such as requiring attendance at student meetings, aroused resentment among the students. A second problem resulted from the pseudosophistication of the students and new supervisors which masked the anxiety of the beginning phase. The anxiety manifested itself in a kind of "acting out" in such things as requests by students for formal instruction in psychotherapy instead of discussing therapist-patient problems directly with their supervisors. Likewise some of the supervisors failed to attend meetings or to keep the instructors informed as to what was actually happening in the student-patient and student-supervisor relationships. A third and perhaps more subtle problem applied to instructors and experienced supervisors alike—how to keep up fresh interest, without handling the program by rote methods or failing to see situations that required administrative intervention.

#### **Summary and conclusions**

A program to give clinical experi-

ence in a psychiatric setting for sophomore medical students at the University of California School of Medicine has been described. The plan, as outlined, has been operating for two years. The structure was based on the premise that the preceptor method of teaching in the clinical field provides the means through which a physician finds his basic identification and learns his functions. Youthful preceptors were given the opportunity to try their skills and interests as teachers. The students and preceptors were permitted to develop at their own rates under administrative watchfulness, with a minimum of interference.

The phases of evolvement of the program for the students and supervisors may be summarized as follows. In their initial discussions there was a testing out of their respective role situations, as shown by questions as to the motives of those setting up the program, what the students and supervisors expected of themselves or what they thought was or might be expected of them. As often happens with patients in therapy after an initial verbal discharge of their own anxiety, there was then a closer focusing on practical problems.

For the students, as with every beginning therapist of whatever age and background, such problems arose as when to schedule appointments; how to open and close an interview; how to conduct it, including how to phrase questions, how to handle silences, how to respond to tearfulness or needling by the patient; and how to handle the matter of vacations and interruptions in treatment. For the supervisors, there was the dual problem of helping the students to express their feelings and then arrive at practical solutions to the problems of structuring and

maintaining the therapeutic relationship.

The focus of attention then shifted to the matter of organizing and understanding the clinical data—the relationship of patients' symptoms to precipitating stress situations, long standing reaction patterns and their genesis. Gradually and much later the students developed some awareness that the patients' behavioral patterns were manifesting themselves in the relationship to the therapist and that the therapist's responses could provide for both a corrective emotional experience and in some cases for insight or re-education, with improved interpersonal relations.

Both students and supervisors came to recognize some parallels to the patient-therapist relationship in the student-supervisor relationship—especially in the matter of discharging feelings and in developing understanding of their own and others' reaction patterns.

On the whole, discussions in the respective group meetings of students and of supervisors reflected and supplemented the working through of problems dealt with between therapists and supervisors. At times the group meetings served to bring into the open problems unwittingly being avoided in the individual sessions. The administrative experience showed that continuous, flexible coordination proved essential to the effective survival of the program.

At the end of the second year the students of both years still emphatically stated that the experience had been worthwhile, that it had been more useful than their didactic lectures in psychiatry, and that there had been a carry over to their work in other phases of medicine, particularly in helping them to understand the emotional components of disease



and to see and treat patients as sick individuals rather than as mere cases.

Our experience with this program demonstrated to us that second year medical students have the capacity to grasp many of the fundamentals of clinical work. We believe that a simply structured program such as the one described can help to prepare physicians to meet the emotional problems which constitute a large part of medical practice. Begun early in the medical students' training and extended over an adequate time, similar programs can help the student establish his identity as a physician, and contribute to his maturation without extending further his long training period.

### **Experiencias clínicas en Psiquiatría para estudiantes de segundo año**

En años recientes, las Escuelas de Medicina de este país han hecho esfuerzos encaminados a eliminar los problemas originados por la separación que existe entre la enseñanza psiquiátrica pre-clínica y la clínica. En el presente artículo se describe un programa clínico para estudiantes de segundo año que está funcionando en el Departamento de Psiquiatría de la Univ. de California, en San Francisco. Con este programa, se asigna a cada estudiante un paciente de la sección psiquiátrica de la *Langley Porter Clinic*, a quien éste atiende, voluntariamente, bajo la supervisión de uno de los doctores de la Clínica. Basado en el sistema preceptorial, ese método da a los jóvenes psi-

quiátras la oportunidad de poner a prueba su habilidad e interés en la enseñanza, y a los estudiantes, un medio de familiarizarse—con un minimum de interferencia administrativa—con sus futuras funciones de médico. El autor describe detalladamente todas las fases del programa, así como los problemas con los que, tanto los estudiantes como los preceptores, habían de enfrentarse necesariamente; problemas y dificultades que son discutidos en reuniones regulares de ambos, las cuales forman parte del plan de enseñanza. Dicha experiencia ha demostrado, dice el autor, que los estudiantes médicos de segundo año poseen capacidad suficiente para comprender y poner en práctica los principios fundamentales del trabajo clínico. Los estudiantes mismos aseguraron enfáticamente que con el nuevo método aprendieron más que a través de sus cursos teóricos en Psiquiatría, y que la experiencia les fué útil también en lo que se refiere a otras fases de sus estudios, particularmente para ayudarles a comprender los componentes emotivos de las enfermedades, y a considerar y tratar a los pacientes como individuos enfermos, más bien que como meros "casos." "Creemos," dice el autor en sus conclusiones, "que un programa de simple estructura, tal como el que acabamos de describir, puede servir para capacitar a los médicos a hacer frente a los problemas de tipo emotivo que constituyen gran parte de su práctica futura. Iniciados en una fase temprana de la educación del estudiante, y extendiéndose sobre un período adecuado, programas similares pueden ayudar al estudiante a encontrar su propia personalidad de médico y a contribuir a su madurez, sin la necesidad de prolongar aun más el largo período de sus estudios."

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Separatas de este artículo, en español, podrán obtenerse si son solicitadas por un minimum de 25 lectores.



## **The Functions of a Department of Genetics in a Medical School**

**JAMES V. NEEL**

Chairman, department of genetics, University of Michigan Medical School

**I**T IS MY pleasant assignment to describe the functions of a new subdivision in the structure of medical education, known as the department of genetics. The emergence of this development is so recent that, so far as I am aware, not more than two or three medical schools at present have such departments, in the sense of independently functioning units administratively at the same level as, for example, the departments of surgery, anatomy or pathology. There are, however, plentiful signs that additional medical schools either have considered or are considering similar or parallel developments. It is undoubtedly recognition of this groundswell, rather than the few existing departments, which prompted the program committee to schedule this paper.

### **Changing content of medicine**

Before proceeding to a description of the functions of a department of genetics in a medical school, it would seem appropriate to consider at this juncture some of the factors that justify the establishment of such a department. Others of these factors will become apparent when we dis-

cuss, later, the departmental functions. There can be readily identified no less than three contemporary medical trends which unite to focus attention on the relevance of genetics to modern medicine.

The first of these trends is the changing content of medicine. This is beyond question the last audience in the world which has to be reminded of the fact that we are in the midst of a medical revolution. The often repeated contrast between the 10 principal causes of death in 1900 and 1950 is familiar to all of you. Projection of these trends into the future is admittedly risky. Yet it is certainly not getting too far out on a limb to suggest that the mature physician of 30 years hence—who is the medical student of today—will be functioning in a society where death from contagious disease is a rarity, where what we may loosely term constitutional, degenerative and congenital diseases, together with the accidental deaths inevitable in our type of society, will utterly dominate the pathological picture. The overall importance of heredity to the etiology of these conditions is yet to be evaluated. That genetic factors in one way or another make a considerable contribution is already appar-

## *Functions of a Department of Genetics*

ent. Much remains to be done to define this contribution accurately. Nevertheless, it seems safe to state that the physician of today—let alone of tomorrow—cannot have the rounded view of the etiology of diseases which he must have if he is to be a student of human biology rather than a health technician, without some grasp of genetic principles.

### **Changing philosophy of medicine**

A second major development focusing attention on genetics in relation to medicine is what might be termed the changing philosophy of medicine. From time immemorial, the physician has been devoted to the welfare of his patient. The pressing needs of patients being what they are, it is understandable that the physician has tended to devote far more thought to these than to first anticipating and then meeting the medical problems of the population as a whole. One result of this concern with the individual, together with a rising standard of living and the efforts of the sanitary engineers, has been the remarkable change in mortality figures just mentioned. Two consequences of these changing mortality figures have been the explosive growth of human populations all over the world and the marked shift to the right in mean population age. Not only are the medical problems of the world's populations changing, the very structure of these populations is being drastically altered, and for this medicine must accept some responsibility.

There are signs that the problems which attend these changes, formerly left for the most part to such specialists as the sociologist, the demographer, and the psychologist, are increasingly being regarded by the profession as a proper concern of

medicine. In brief, there is, I believe, an expanding concept of the social responsibilities of medicine. One manifestation of this is increasing emphasis on preventive medicine. The role of the geneticist in defining high risk groups, and, for given clinical entities, in separating those cases which will respond to a particular type of therapy from those which will not, is very real but still largely to be worked out. Furthermore, without forsaking the care of the presently ill, medical science must be prepared to make an increasing contribution to planning for the future. Human populations are being projected at an accelerating rate into situations in which they have not previously been tested. Do we meet this by piling on the tranquilizers, or by a real effort to understand man, as a complex organism whose capacity to adapt may have certain genetic limitations? Moreover, as a geneticist, I submit that the greatest asset of mankind today is its germ plasm—whatsoever threatens this must be viewed with concern. It is recognition of this principle which has prompted the recent attempts of both national and international committees to come to grips with the genetic implications of the increasing exposure of human populations to the effects of ionizing radiation. There are other less dramatic but possibly equally important dysgenic influences abroad today. Genetic considerations cannot fail to enter into any rounded appraisal of future human medical and social problems.

### **Rise of bacterial genetics**

Thirdly, now, in this attempt to list the principal trends leading to the formation of departments of genetics in medical schools, I should list the discovery that strain differ-

ences in bacteria and viruses with respect to virulence, to antigenic properties, and to cultural characteristics have a genetic basis. Genetically controlled variations in the agent of disease thus emerge as of equal importance with genetic variations in the host in the pathogenesis of disease. The concept of mutation, so important in the evaluation of radiation problems, is of equal value to the microbiologist concerned with the origin of drug resistant strains of bacteria. In many medical schools today, the best trained geneticist is to be found in the department of microbiology.

Two years ago, the annual Teaching Institute of the Association of American Medical Colleges was devoted to the subjects of pathology, microbiology, immunology and genetics. This Institute must be regarded as a major landmark in the emergence of medical genetics in this country. The small handful of us who represented genetics at the 1954 Institute approached the meetings with considerable trepidation, for we were, as was only proper with subjects like pathology and microbiology on the agenda, very much in a minority, and uncertain of our reception. What actually transpired is well recorded in the report of that Institute (1955). In retrospect, it was apparent that we geneticists had badly misjudged the times. Instead of having to fight for our professional lives, the questions at issue were "Where do you best fit into the curriculum, how much time do you need, and where do we find qualified men?" I would estimate that in the last two years, the number of medical schools developing programs in genetics has perhaps tripled—this cannot help but be a reflection, at least in part, of a trend which suddenly crystallized at that meeting.

### Functions of a department

With this as background, we turn now to a consideration of the actual day to day functions of a department of genetics in a medical school. In this discussion, I shall be drawing very heavily on our thinking regarding the newly established department of human genetics at the University of Michigan Medical School. A brief historical note seems in order. In 1941 a distinguished zoologist on the University of Michigan staff, Dr. Lee R. Dice, became interested in the implications of genetics for human biology, and with the active support of the university administration, including the medical school, launched a research program. At the same time, a Heredity Clinic was organized, both to explore the legitimate applications of genetic principles to medical practice, and to act as a "feeder" device for genetic research. Although the Heredity Clinic was administratively a part of the Institute of Human Biology, of which Dr. Dice was director, the clinic was also an out-patient clinic of the University Hospital, and its personnel have from the beginning been closely associated with the medical school. With Dr. Dice's retirement last June, the Institute was disbanded, and those of its personnel working in the area of human genetics—actually the majority of its staff—became the nucleus of the new department of human genetics of the medical school. Many persons have contributed importantly in the evolution of our present practices. In particular, I should like to mention Dr. Harold F. Falls of our department of ophthalmology, and Dr. Charles W. Cotterman, now with the Wadley Research Institute. One reason for introducing this historical note is to make it clear that although our department itself

is actually quite new, in this presentation of departmental functions I am drawing on an experience extending over some 15 years.

### **1. The teaching of genetics**

The functions of a department of genetics fall into the classic medical triad, of teaching, public service and research. The teaching of genetics in medical schools is still in the experimental phase. Among the pioneers in this experiment must be listed Madge Macklin, Lawrence Snyder and William Allan (see bibliography). As brought out by the papers of Herndon (1954, 1956) and reemphasized by the questionnaire of the 1954 Teaching Institute, there is really a remarkable diversity, where the subject of genetics is introduced into the curriculum at all, in the manner in which it is done. We give our course to medical students at the beginning of the second year, which, marking as it does the shift in emphasis in most schools from the anatomical to the etiological phase of instruction, seems the most appropriate time. Thus, as the student learns about extrinsic causes of disease in bacteriology he learns about intrinsic factors in genetics. We have 10 lecture hours—16 would be better. No attempt is made to send the student away with a built-in index of the various inherited diseases and their modes of inheritance. The emphasis is on creating an understanding of how genetic factors produce health and disease, through a consideration of the mechanisms of inheritance, the manner in which the genes express themselves, the frequency and importance of mutation, and a consideration of genetic epidemiology. An effort is also made to indicate the principal areas of application of genetics, in

genetic counselling and medico-legal problems.

There is widespread interest in the so-called integrated curriculum, and equally widespread recognition that this is a far more difficult type of instruction than our more conventional approaches. In many respects, instruction in genetics would seem to lend itself especially well to this approach. Thus, with the foundations laid in the second year, the genetic point of view might well make a reappearance, in the third or fourth years, in connection with instruction in those medical specialties where gene-controlled diseases are especially evident—for example, pediatrics, internal medicine, neurology, and ophthalmology.

Such a reappearance can either be on the basis of formal lectures, or through participation in clinical conferences, staff rounds, or CPC's. The latter is our more usual pattern at the moment. Dr. Herndon, at Bowman Gray, follows up a didactic presentation of genetic principles in the second year with a series of 10 third-year "clinics" each built around a genetic principle—this seems like an excellent idea. Finally, Dr. Sam Martin of the University of Florida has recently suggested the desirability of the geneticist setting aside a few hours each week for discussing with students the genetic problems they are encountering on the wards, this interest on the part of the student perhaps stimulated by the insistence of the rounding man that the student report back to him. Obviously, it will be some years before the experience has accumulated which will permit decisions regarding the best way to present this material to medical students.

Beyond the "bread and butter" course to medical students, a department of genetics should present a

number of other courses at the graduate and, possibly, undergraduate level. The full teaching load of our department is yet to be worked out, since we are still making the transition from our previous primarily research frame of reference. We regard the training of teachers in this field as one of our most pressing challenges. One member of the department gives two more extended courses in human heredity, emphasizing methodology, at the graduate school level; another member, who holds a joint appointment in the department of anthropology, teaches several courses in population genetics and statistics. A third member will probably introduce a course in biochemical genetics shortly. In this connection, it should be made clear that such is the breadth of the subject of human genetics that a department of genetics can and should embrace persons of very diverse backgrounds. The department conducts a semimonthly genetics seminar and, on the alternate weeks, our equivalent of the "grand rounds" of the more clinical departments, namely, a review of all the patients referred to the heredity clinic within the past two weeks. Although our own group does not include a microbial geneticist, in organizing a department of genetics such an appointment, perhaps jointly with the department of microbiology, would seem reasonable.

## 2. Service responsibilities

The service responsibilities of a department of genetics are threefold. To begin with, the staff should be available for counselling in human genetics. Genetic counselling may be defined as an attempt to introduce genetic principles into the solution of a problem of importance to a patient

or agency. Otherwise stated, it is an attempt to answer certain questions which patients may raise, through the application of a knowledge of human heredity. Time does not permit us to go into the implications and ramifications of genetic counselling, which have been the subject of a number of recent articles (Anderson, 1951; Neel, 1951; Dice, 1952; Reed, 1953; Herndon, 1954, 1955; Neel and Schull, 1954; Lamy, 1955; Fraser, 1956). From the practical standpoint, it must be recognized that this counselling is time-consuming and usually devoid of immediately obvious results. Yet we feel that it is a legitimate, albeit very minor, facet of modern medical practice. Incidentally, we attempt to maintain a distinction between genetic counselling and eugenics, the latter involving a conscious attempt to influence the reproductive behavior of an individual or group through legislation or persuasion, the former involving an effort to bring the patient or some responsible individual to an understanding of a problem, without at the same time attempting to impose a decision involving a course of action on that patient or individual. We feel that although there exists a sufficient knowledge of human genetics to provide in a variety of situations information of real value to patients, we do not yet have the over-all knowledge of human inheritance which is basic to an intelligent eugenic program.

A second type of service rendered by the human geneticist is in connection with the statistical problems of his colleagues. Genetics is the most mathematical of the biological sciences—the geneticist of necessity acquires a considerable familiarity with statistical procedures. In these days of increasing concern with both the design and analysis of medical experiments, the geneticist is often in



a position to be of real service to his colleagues and this, in my opinion, should be regarded as a legitimate, time-consuming function.

Finally, in rounding out the service picture, attention should be drawn to the increasing demands, on a national level, for the advisory services of geneticists. To quote but one example, there is growing evidence that the limiting biological factor in the use of X-rays for diagnostic purposes and the development of atomic power for peaceful purposes may be the genetic one (cf. the recent reports of the National Academy of Sciences and the British Medical Research Council Committees). The question of the average amount of irradiation the members of the human race may receive over a series of generations without imperiling the genetic well-being of the race is certainly one of the pressing issues of our time.

There are other possible service functions of the department, depending on the background of its personnel. For instance, the ramifications of medico-legal serology are now so complex that one wonders whether that function in a medical school is best handled by a serologist who has acquired some knowledge of genetics, or a geneticist who does serological research.

### **3. Research program**

We come, now, to the research program of a department of genetics. It is difficult to generalize here, since research programs are, after all, so highly individual. Everywhere the geneticist turns today, he sees worthwhile problems. These problems are scattered over the entire face of human biology, and this brings us to a rather important 'tactical' issue. The geneticist, even if he has considerable

clinical training, will in the study of any specific disease entity frequently find it desirable, and in some instances absolutely necessary, to work with a competent specialist in that field. In other words, much genetic investigation must be collaborative. The tactical question, of importance in the planning of new departments, is the extent to which the departmental research program will be collaborative, utilizing in large measure the facilities of others, the geneticist supplying little more than the calculating machine, and to what extent should the geneticist have independent laboratory facilities. We are at present at Michigan designing a new Medical Sciences Building which, among others, will house the department of human genetics. This question, which bears directly on the future lines of development of the department, is one of the most difficult with which we are confronted. In this connection, our own philosophy is that although a great deal of our work will be collaborative, the geneticist has a very definite need for certain laboratory facilities.

A second point which bears making in connection with the research programs of the departments of genetics is this: Although the intensive study of unusual families will still yield valuable information, more and more the geneticist is realizing that to answer some of the basic questions of human genetics, rather large scale studies on selected populations are indicated. This has definite implications with respect to the space and facilities requirements of the department of genetics.

### **Summary**

In closing, let me recognize, with you, that my presentation has been that of an enthusiast. It could not



have been otherwise. However, speaking as a physician who has kept one foot in the clinics and on the wards, I believe I have a reasonable grasp of the full complexity of modern medicine. At Michigan we really don't anticipate that the department of human genetics will replace the department of internal medicine—to which I have owed allegiance for some years—or even the department of surgery. On the other hand, we do expect, over the next 10 to 20 years, to witness a growing realization, both at home and abroad, of the fact that human genetics is a legitimate facet of the complex face of modern medicine.

## REFERENCES

1. ALLAN, W.: "Medicine's Need of Eugenics," *South. M. and S.*, 1936, 98, 416-417.
2. ANDERSON, R. C.: "Genetics and Medical Practice," *Journal-Lancet*, 1951, 71, 49-52.
3. DICE, L. R.: (Chairman) "A Panel Discussion: Genetic Counseling," *Am. J. Human Genet.*, 1952, 4, 332-346.
4. FRASER, F. C.: "Heredity Counseling," *Eug. Quart.*, 1956, 3, 45-51.
5. HERNDON, C. N.: "Human Genetics and Medical Education," *J. Med. Educ.*, 1954, 29, 13-19.
6. HERNDON, C. N.: "Medical Genetics and Marriage Counseling," *Marriage & Family Living*, 1954, 16, 207-211.
7. HERNDON, C. N.: "Heredity Counseling," *Eug. Quart.*, 1955, 2, 83-89.
8. HERNDON, C. N.: "Genetics in the Medical School Curriculum," *Am. J. Human Genet.*, 1956, 8, 1-7.
9. LAMY, M.: "Les Maladies Hérititaires et le Mariage," *Presse Méd.*, 8 October 1955, pp. 1324-1325.
10. MACKLIN, M. T.: "The Teaching of Inheritance of Disease to Medical Students," *Ann. Int. Med.*, 1933, 6, 1335-1343.
11. MACKLIN, M. T.: "Should the Teaching of Genetics as Applied to Medicine have a Place in the Medical Curriculum?" *J. Ass. Am. M. Coll.*, 1932, 7, 368-373.
12. Medical Research Council (Gt. Br.): "The Hazards to Man of Nuclear and Allied Radiations," London: *Her Majesty's Stationery Office*, 1956, pp. vii & 128.
13. National Academy of Sciences (U. S.): "The Biological Effects of Atomic Irradiation. Summary reports of Committees." Washington: *National Academy of Sciences*, 1956, pp. xiv and 108.
14. NEEL, J. V.: "Some Applications of the Principles of Genetics to the Practice of Medicine," *M. Clin. N. A.*, 1951, 35, 519-533.
15. NEEL, J. V., and SCHULL, W. J.: "An Introduction to Human Heredity," *University of Chicago Press*, 1954, pp. 361.
16. REED, S. C.: "Counseling in Human Genetics, part III," *Bull. Dight Institute, Univ. Minn.*, 1953, No. 8, pp. 10-19.
17. Report of the Second Teaching Institute, Association of American Medical Colleges, "The Teaching of Pathology, Microbiology, Immunology, Genetics," Chicago: *Association of American Medical Colleges*, 1955, pp. xv and 164.
18. SNYDER, L. H.: "Genetics & Medicine," *Ohio M. J.*, 1933, 29, 705-708.

### El Departamento de Genética dentro de las Escuelas de Medicina

J. V. Neel, Prof. del Departamento de Genética de la Escuela de Medicina de la Univ. de Michigan, describe en este trabajo (una conferencia leída ante el 67 Congreso de la *Association of American Medical Colleges*) las funciones de un Departamento de Genética dentro del Colegio de Medicina, y explica las razones que justifican su existencia. Sólo hay actualmente dos o tres instituciones donde tal Departamento funcione en un plan de igualdad con otros Departamentos, como el de Anatomía o Patología, y su establecimiento data de fecha reciente. Sin embargo, el autor cree que ese número ha de aumentar considerablemente en el futuro cercano. Los factores principales que determinan esa tendencia hay que buscarlos, dice el autor, en la "revolución" médica que tuvo lugar en las últimas décadas. Desde que, debido a los progresos científicos, las enfermedades contagiosas y epidémicas dejaron casi completamente de constituir un peligro, el centro de interés de la investigación médica lo constituyen las enfermedades constitucionales y congénitas, y, por consiguiente, el estudio de los factores hereditarios y de la Genética en general ha crecido en importancia. Otro factor que contribuye en enfocar la atención médica hacia el campo de la Genética es el cambio

que tuvo lugar, a consecuencia de dichos progresos, no sólo en los problemas con que se enfrenta el médico, sino en el concepto mismo de *médico* y de sus responsabilidades sociales. La estructura de las poblaciones del mundo ha sido alterada radicalmente, y problemas que antes fueron de la incumbencia exclusiva de sociólogos, demógrafos o psicólogos, hoy día, y cada vez más, tienen cabida en el campo de la Medicina, como lo muestra, por ejemplo, el papel cada vez más importante que desempeña la Medicina Preventiva. Y para resolver esos problemas la Genética es también de considerable utilidad. En cuanto a las funciones de

un Departamento de Genética dentro de la Escuela de Medicina, éstas se dividen en tres categorías: enseñanza, investigación y servicio público. Cada una de estas funciones es descrita detalladamente por el autor, el cual destaca la demanda creciente, en la vida nacional de este país, de los servicios y consejos de los miembros de los Departamentos de Genética.

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Separatas de este artículo, en español, podrán obtenerse si son solicitadas por un mínimo de 25 lectores.

### **Urology Award**

The American Urological Association offers an annual award of \$1000 (first prize of \$500, second prize \$300 and third prize \$200) for essays on the result of some clinical or laboratory research in urology. Competition shall be limited to urologists who have been graduated not more than ten years, and to hospital interns and residents doing research work in urology.

The first prize essay will appear on the program of the forthcoming meeting of the American Urological Association, to be held at the Roosevelt Hotel, New Orleans, Louisiana, April 28-May 1, 1958.

For full particulars write the Executive Secretary, William P. Didusch, 1120 North Charles Street, Baltimore, Maryland. Essays must be in his hands before December 1, 1957.

## The Relationships between Liberal and Professional Education

**EDWARD M. BRIDGE**

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**A**T THE present time there is in higher education a dichotomous situation: One the one hand educators are presented with the possibility of educating man liberally and broadly to live happily and profitably in the world as it is, while on the other hand they may train him to earn a living in a career that utilizes special knowledge and often carries high responsibility. The liberal education is called cultural and scholarly; the professional education is called vocational and practical. In the former the learning process is accompanied by development and maturity of the student, in the latter by the acquisition of technical competence. Colleges and universities in this country have been organized around the concept that this dichotomy is essential in the nature of a university and in the presence of the wide variety of specialized knowledge which our generation has inherited.

The sharp lines that have been drawn between the two educational divisions have, however, given rise

to an undercurrent of dissatisfaction. This appears repeatedly in national surveys of the various professional groups but has received less mention in the literature on liberal education. Leaders in the latter field have succeeded in bringing their views to a point of wide acceptance and are concerned with the defense of their system against the encroachments of science, the professions, and the current social turmoil. They strive to teach the eternal verities and have their most rewarding successes with the more able students. The professions, or to use the broader term, "vocations," have been hard pressed, on the other hand, to keep their teaching abreast the developments of the century. Consequently their curriculums have become highly technical. At the present time each profession is recognizing the deficiencies that have resulted and is searching for ways of humanizing its training program. The professions are asking for help from the general educationists; the generalists are reluctant

to become involved in the practical aspects of vocational training.

In spite of these differences, all education that operates in harmony with the principles of democracy has certain common aims that gives it an underlying unity. The center of focus is the individual child or citizen and his right to take part in the making of decisions that affect him and his associates. Each is able to contribute most to society, not by conformity to a stereotyped pattern of preconceived order, but through development of his own aptitudes and potentialities. Similarly, success that is based on intrinsic worth cannot be judged by any single set of criteria; it is related instead to the degree to which special talents are put to use for the benefit of society as a whole.

Diversity of human talent is a requisite in the growing complexities of modern industrial civilization. And in the decade that lies ahead with expanding college populations, the challenge to our institutions of higher learning will be great indeed. The unities of purpose must be kept clearly in the foreground, and some new form of balance established between rigid educational prescriptions, development of individual talents, and narrow specialization and isolation. To meet this challenge it behooves educators to take a fresh look at the organizations that have evolved during the 20th century and to safeguard them against the hazards of bigness and the impersonality of regimentation.

#### **Unifying elements in higher education**

*The continuity of student growth.* University organization assumes that there is an appropriate time in a student's development when he should turn away from the satisfactions and disciplines of liberal

education and settle down seriously to prepare for a career. This is particularly true of medicine, law, dentistry, engineering and pharmacy. Yet from the viewpoint of the student seeking education as a means of finding his place in adult society, the separation of studies into isolated segments is illogical.

Whatever the motive behind the decision to go forward with his education, the student is in the process of adapting himself to what the future appears to hold. A variety of pathways and stages exists, and at times he may be uncertain how to proceed. Nevertheless, it is a continuous growth that he is experiencing, and at best the sharp breaks in educational sequence have little value beyond forcing career decisions by annual deadlines. University organization tends to block this continuity of growth. It often operates as if man were made for the university, not the university for man.

Each student enters into his advanced studies with some conceived goal in mind. This may be only general satisfaction with the life of learning or even the enjoyment of community college life. For many it is preparation toward a career with economic gain and prestige. And for some, higher education may be accepted as an escape from objectionable circumstances, personal as well as external. In any case, the adventure in learning is accepted as a means of filling some unmet need and as such is an impelling force that should and must be reckoned with in university planning. To ignore it is to block one of the most powerful ingredients in success. To utilize it is to open vistas of fulfillment that can add further incentives to advance. All too frequently the glow of anticipation which the student brings with him to college is lost in the

complexities and dichotomies of a modern university. He soon settles down to the necessities of sloggng his way through requirements and winning the symbol of an educated man.

Attempts to meet this situation have been going on since the Civil War. Charles W. Eliot, one of the leaders in these attempts, succeeded in introducing the revolution of the elective system into the conservative Harvard curriculum, and thereafter changes spread rapidly. The purpose was clearly in line with the American democratic ideal of education for all and to each in whatever quantities he cared to partake. Since then the pendulum has continued to swing back and forth, and even today scarcely an institution of higher learning exists that is not struggling with the need for some better balance between freedom and requirement.

Unfortunately, the student often lacks the perspective necessary to make wise choices under the elective system. On the other hand an educational prescription falls equally wide of the mark. Whatever answer is forthcoming is likely to be successful in the measure to which it enables the student to proceed most directly toward his goal with full understanding of its significance and alternatives. The guidance of students through the maze of university organization represents an area where liberal and professional education meet on common ground.

#### Common elements in success

In the complexities of organization it is easy to forget that professional schools, and to a large extent graduate schools as well, have their origins in the need of society for specialized services. Flexner pointed

this out explicitly in his discussion of professions in 1915<sup>1</sup> and no one has seriously disputed the view. The primary function of professional schools is, and will undoubtedly remain, training toward practice—bringing to the people the benefits of specialized and advancing knowledge. While able teachers, administrators, and researchers are also needed, the obligation of higher education to train practitioners should not be overlooked in the more glamorous competition for advancement in other directions.

If it were possible to define the elements that contribute to success in the varied functions of professional workers, university training programs might be oriented accordingly. Yet in spite of numerous attempts to conduct well-controlled studies, the answers are still elusive. The current literature on the subject has gone little beyond the stage of personal impressions and is usually couched in the jargon of the trade—technical competence, critical thinking, value judgments, familiarity with the scientific method, communication skills, creative imagination, and so on. While expressing desirable ingredients, these phrases fail to point out significance in terms of individuality and the psychology of learning. There is, however general agreement that much more than simple competence in several academic disciplines is involved. At the risk of oversimplification, a basis for success is submitted below in the hope that it may direct attention toward some of the common ingredients in both professional and liberal education and perhaps offer a basis for some new form of educational unity.

<sup>1</sup>Abraham Flexner, "Is Social Work a Profession?" *School and Society*, I, (1915), 901-11.

From the viewpoint of human psychology the elements that contribute to success appear to be relatively few in number.

1. The individual must possess a *mind that is free*—perhaps only relatively free—from the obstructive inhibitions of psychological insecurity. He must possess a degree of personal confidence that permits him to meet new situations directly and objectively. Without this, learning is ineffectual, possibly warped, new ideas and change are resisted, and the ability to select alternatives and make decisions is hampered.

2. The necessity for continuous learning or the *will to learn* has been pointed out by many others. This cannot depend on driving forces of conscience and guilt. Instead, it must have grown out of stimulating and rewarding experiences in early education, and be led on through the attractiveness of some goal that the student clearly appreciates as his own. The will to learn, once established, soon becomes a self-propelling force. Without it, growth ceases and professional service becomes mechanical repetition; with it, the individual has at his disposal the accumulated knowledge of the ages.

3. To deal with new and unfamiliar situations both at the human and factual levels is a part of the daily work of all professional people. To facilitate this form of activity, abilities which are usually defined as originality and resourcefulness are needed. Although this *creative ability* has as yet only an ill-defined psychological basis, it cannot operate in the presence of the crippling inhibitions pointed out above. But with freedom from restraint and an active probing mind stored with pertinent knowledge, the basis for accomplishment exists. When a new situation presents itself there takes place

a flight of ideas, a free association with multiple facets of experience that concentrate with miraculous rapidity toward logical points of relation. If no solution presents itself, curiosity and challenge remain and become impelling forces to further thinking and experimentation. Success depends on the diversity and depth of background knowledge and the capacity to select logical extensions in the light of technical, human, and social values. The process is often described as a synthesis of ideas. Creativity, then, is definable as a combination of well-integrated knowledge, wide-ranging associations, effective sorting for pertinent relationships, and flexibility of outlook.

4. If one accepts as a basis for defining a profession or vocation the performance of some form of expert service to society, then an ingredient of success lies in what is often included in the term *leadership*. This is closely related to facility in dealing with human relationships. It arises out of understanding of the interactions between a professional person and his client and between the client and his social groups. Leadership often hinges on the degree to which the individual has incorporated into his philosophy of living the principles of human rights. Acceptance of the freedom of men to share in making decisions and to learn from the consequences is a *sine qua non* of democratic leadership.

5. The vigor and continuity with which a person works are affected by his *aesthetic* satisfactions. Sensitivity to beauty and quality, pleasure in companionship, a sense of oneness with humanity, satisfaction with accomplishments, health and vitality—these and many other elements combine to lend zest and joy to liv-



ing. They stimulate and sustain and add efficiency to effort. Without them even the most creative activity may lose its challenge.

From such a background the various aspects and disciplines of university life begin to fall into a composite whole. Factual knowledge and technical skills are the commodities which a professional worker dispenses, and these represent the basis of specialization. Yet the learning of facts by rote and training toward particular skills are not enough; to be effective in unexpected situations, knowledge must be closely woven into the very warp and woof of living. It must be available through firm associations with other facets of experience in order to contribute to judgments, decisions, and creative developments.

Furthermore, to carry on professional service in a way that will be acceptable to clients and public alike requires personal characteristics that bear no necessary relationship to subjects mastered. While the basis for these characteristics is, of course, laid down well before the period of professional study, university programs can foster their development in significant ways. The process is one of continual growth with liberal education making its major contribution to the human basis for success while the professional schools concentrate—too heavily, no doubt—on technical competence. The dichotomy within universities bears no relationship to the purposes for which higher education exists; it is largely a by-product of organization and as such offers no insurmountable obstacle to improvement.

#### Common principles of learning

We of the present generation—perhaps all generations—tend to look at

the various branches of learning as entities in their own right, as if, like Athena, each had sprung fully armed from the head of Zeus. History, however, tells quite a different story. Knowledge is born of human experience, grows with increasing diversity, and because of human limitations matures into a large number of apparently unrelated specialties. The unities of origin and value are easily overlooked and the contributions of each to the others are misunderstood and ignored. Unfortunately, the results are often a narrowness of outlook among professional workers and a criticism, not without justice, of university training programs.

To a biologist, segmental learning appears contrary to established principles of growth, both physical and intellectual. Growth is a process of continual extension, and each new element is intimately related to that which existed before. Progress takes the form of a step-by-step assimilation of simple structural units but never the total incorporation of large segments. Biological growth stands in sharp contrast to accretion. The situation is scarcely different in regard to intellectual growth. Patterns of reaction are present in the newborn infant which represent the epitome of evolutionary experience, and a stupendous potential exists for absorbing new experiences and relating one to another. Their utility will depend on the force behind them and the firmness of the associations established. From the point of view of a biologist, continuity in growth is a law of life. It is nature's way of relating the past to the present and combining the stability of tradition with the freedom and independence of the individual.

How can the biological law of continuity in growth be applied to the problems of higher education? How

can unity in intellectual development be fostered in the face of the highly specialized character of university education? In all probability the answers will be found, not in a new curriculum or improved facilities and budget but in the relationship that exists within the classroom between learner and teacher.

Biologically speaking, learning can go on only within the student. The teacher can make the process easier or more difficult, but beyond this he is helpless. The art of teaching resolves itself into an ability to whet a student's intellectual appetite and to guide him toward likely fields in which to forage for food. The closer a teacher comes to sharing the interests and goals of his student, the more likely he is to succeed. Furthermore, the more intimately he understands the learner as an individual, the more likely will he be to offer counsel and guidance that are acceptable and helpful. More teachers should be trained as counselors rather than intellectual carpenters.

Biology has still another suggestion to offer for promoting unity in student learning. The principle which nature follows in allowing each individual to grow through certain stages in the evolutionary advance of the species has a close analogy in education. Intellectual maturity—wisdom—ripens, not in direct proportion to the amount of factual knowledge absorbed, but only in proportion to the degree to which historic trends can be synthesized into applications for the future. To function in this way an individual must be familiar with the forces and ideas that have influenced progress in the past and with the means through which important new concepts are born. Teaching programs of this sort have been set up in many liberal arts colleges but largely in the hu-

manities and social sciences. The curriculum is organized around "great books," both ancient and modern, and the classes are conducted in ways that encourage students to live through the uncertainties and eventual discoveries of great contributors to progress.

In the physical sciences and the professions, on the other hand, pressures to keep teaching abreast of the current developments have interfered with emphasis on historic perspective or birth of new ideas. This difference may explain in some measure the discrepancies in viewpoint and policies between liberal and professional educators that have given rise to the current dichotomy. Yet from the standpoint of an educator, the professions might find much to gain from wider use of the "great books" principle as a means of abetting intellectual maturity in their students. The approach has a sound biological basis in the laws of growth.

The roots of all professions lie deep in the history of civilization. The code of ethics under which physicians serve today, for example, was first expressed in writing 25 centuries ago, and in all probability the principles underlying the practice of theology and of law go back still further. A neophyte can hardly be expected to appreciate the function of his profession in society without an understanding of the responsibilities and privileges that society has accorded to him. Furthermore, if viewed from the common background of history and public service, there appears a unity among the professions that has been largely befogged in an age of specialization and wide separation of specialized training programs. No profession can operate within and for itself. To maintain the respect and support of society, each form of service must work in

balance and harmony with the others. The narrow expert is not likely to accomplish this, and perhaps an important problem facing the professions today is to find common ground in history, education, and practice that will lend greater proficiency to the total service rendered to individuals and to society.

### Implementation

In order to bring more unity into the relationships between liberal and professional education bold experimentation will no doubt be necessary, and already numerous projects are under way. Several examples are perhaps appropriate to illustrate possibilities and directions. Most of them will be drawn from the health sciences because of the writer's familiarity with this area. Equally important experimentation is going on in other fields also.

Until 1955 no American medical school had a curriculum that gave encouragement in any way to the continuation of liberal studies parallel to professional ones. The medical student's time was more than filled by difficult courses equivalent to from 22 to 24 hours by the usual academic standards. And with rare exceptions those courses that had general educational value were not open to outsiders. Under these circumstances it is not surprising that medical students and physicians have come to look on liberal education largely as an enforced requirement and quite divorced from the goals as they understand it.

Two universities, Florida and Vermont, are trying out a new plan in the health sciences. For one, two, or even more years selected students are being encouraged to carry on liberal, preprofessional, and early professional studies in parallel with a

gradual focus toward strictly professional ones. Only during the final clinical years is their time devoted exclusively to patients and disease, and here it becomes a modified form of apprenticeship. The sponsors are seeking a better educational balance and a gradual progression of studies. At the same time the plan may aid the student to make a final choice of career that will be in keeping with his real interests and abilities.

Although the importance of good teachers has always been recognized, it is only in recent years that training toward a teaching career in the higher levels of education has been accorded merit. At the present time a variety of such opportunities is available including one full-scale program in a medical school—the University of Buffalo Project in Medical Education. Experience in this project has illustrated the benefits that may come from combined efforts of professional men, educators, and college faculties in training young professionals in the principles of education.

Of equal interest is an experiment in the use of a "generalist" teacher at the same university. In spite of the fact that students enter a medical school to study medicine, parts of the course work seem only distantly related to their interests. Yet to one who has followed through the entire sequence, the relationships are readily apparent. To aid the students in understanding these relationships a recent graduate was assigned to a class of entering students as a junior instructor without specific departmental appointment. He assisted in one or two major courses each year, came to know each student as an individual, and in the end found himself in the position of class adviser. The idea behind the plan was that "if a class . . . could identify itself with at least one physician who

teaches them through their four years, he might personify for them in some measure the practical goal of their studies and help them fit the parts into the whole."<sup>2</sup> A class has now been graduated under the plan, and while it is difficult to assess results, some of the possible gains have become clearer.

Such "generalist" teachers are rarely seen beyond the sixth grade of public schools. Yet a need for them exists during the early and broad phases of any specialized training program to relate the new studies to previous ones and to point out the applications to others. Perhaps the addition of the generalist teacher could also bring to large-size classes the personal element that is so often lacking.

At Western Reserve University School of Medicine a radical revision of the curriculum has been accomplished.<sup>3</sup> Departmental autonomy in teaching has been replaced by "subject committees," each of which has representatives from several departments. The allocation of time and the emphasis to be placed on particular features is also the responsibility of the group and is defined on the basis of goals of the entire training program and not of individual departments. The trend is again toward generalist teachers, at least during the early phases of the program.

University schools of nursing have recently instituted changes designed

to bring together liberal and professional studies into a more unified whole.<sup>4</sup> They have separated their programs from hospital service requirements and now make use of practical bedside care as the equivalent of laboratory periods in the natural sciences or field work and practice in education and the fine arts. Experience with illness and handicapped people thus begins early and moves forward into increasingly complex and difficult situations. Parallel to this sequence run liberal studies—history, sociology, literature, and so on—which take on added meaning in relation to the human problems encountered at the bedside and in the patient's family. Concentration in the professional area replaces the usual collegiate major, and the vocational motivation of the student becomes the point of reference for liberal studies. Whether the academic work ends after two years, upon receipt of the baccalaureate or graduate degree, the progress and continuity of the program advance both liberal education and competence for a career.

It is often said that inherent differences exist between professions, vocations, crafts, and trades. Because of this, each training program has been thought of as needing its own particular orientation. On the other hand it is well known that professions begin as skilled crafts, gradually accumulate a special body of knowledge, acquire social responsibilities, and eventually reach a status accepted as professional. Furthermore, within each area of public or professional service there exists a hierarchy of functions extending from local technical competence to broad ex-

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<sup>2</sup>T. H. Noehren, "Teaching in All Four Years by a Single Instructor," in *Developments in Medical Education at the University of Buffalo 1953-55* (Buffalo, N.Y.: University of Buffalo, School of Medicine, 1955).

<sup>3</sup>*An Experiment in Medical Education at Western Reserve University: A Symposium on the Evolution of the Program* (The Association of Life Insurance Medical Directors of America, 1954).

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<sup>4</sup>Margaret Bridgman, *Collegiate Education for Nursing* (New York: Russell Sage Foundation, 1953), chap. 6.

ecutive ability. Varying degrees of craftsmanship are needed, and today professional service on an individual basis is slowly giving way to group practice, consultation support, and institutional coverage because the diversity of need far outruns the capacity of any single individual to fill it.

The successful work of a profession requires the coordinated efforts of variously trained persons. A surgical operation, for example, requires not only the surgeon but also anesthesiologist, nurses, administrative personnel, technicians, pharmacists, and many others who keep the wheels of a hospital turning smoothly. Failure on the part of any one may adversely affect the whole. Similar teamwork lies behind the efficient operation of other professional services. From the standpoint of education the differences between director and technical assistant, between surgeon and nurse, are in fair measure quantitative rather than qualitative. And while universities have been criticized severely for setting up a multitude of vocational training programs, the difficulty seems to lie not in vocational training *per se* but in the narrowness of the course of study and the lack of relationship between the various levels of training. To meet this situation the University of Florida is in the process of developing a program in the health sciences in which variety, depth, and duration of a course of study can be accommodated to the needs of the individual student.<sup>5</sup> The opportunities range from secretarial and technical assistants to the highest professional levels.

General educationists may rise at

this point to argue that all education is thus being turned into practical and vocational channels and that learning for its own sake is being discredited. This, however, is not necessarily a valid criticism. Does the joy of learning come in any less degree to those who sense purpose and direction in their efforts than to others who move in whatever direction the wind blows? The opposite seems more likely, and changes might even put new life into "useless knowledge." By bringing the humanities and social sciences into clearer relationship to the interests of the student, they could take on added meaning and challenge him to move out still more broadly. They could be taught as a vital contribution to the problems of today in the same way that in centuries past, Greek and Latin were not cultural academic disciplines but the simple tools of every scholar who sought to learn from books.

If the principles discussed above are sound, there is need to take a fresh look at university organizations and to search for better working relationships between liberal arts colleges and professional schools. The need is urgent at the present time, for, in the decade of expanding college populations that lies ahead, the spawning of courses and programs is likely to go on apace. Without a plan for establishing over-all educational policies the situation is likely to be even more confusing to the coming generation than it has been to the last.

### Outlook

Conditions within American universities today have certain similarities to the period of 1880-1910. The introduction of the elective system into the colleges had been a popular

<sup>5</sup>Unpublished studies of the J. Hillis Miller Health Center of the University of Florida at Gainesville.



success and educational offerings had expanded tremendously to meet the interests of all. It soon became apparent, however, that the gains were mixed with several losses. Some students quickly found fields that interested them and proceeded to channel their efforts in a single direction. They graduated as experts but lacked the perspective of a mature philosophy. Others with no particular interest dabbled in pleasant superficialities. The system was consistent with the democratic principle of freedom of opportunity, but in many instances the student was unaware of, or too immature to deal with, the accompanying responsibilities. Two innovations helped to compensate for the deficiencies: (a) distributional requirements in major areas such as the humanities, social sciences, and physical sciences, and (b) the system of student counseling.

During the years that have passed since this time the number of course offerings has again increased tremendously, but in contrast to the previous period the increase has taken place largely in the vocational area. Perhaps the time has come when there is need for grouping and coordination of vocational training programs and for extending the counseling system to aid the student in making the most appropriate choices. In the same way that liberal education gained by setting up major divisions of humanities, social sciences, and natural sciences, so also grouping of vocational training programs around common areas of public service might help to clarify the present confusion and chaos.

In his delightful essay on the development of higher education in America, Hofstadter<sup>6</sup> traces the sweep of evolution through what he calls the process of secularization. From a

strictly formal discipline concerned largely with moral theology and education for the leisure class, the work of colleges and universities has moved steadily outward in keeping with the changing times and the needs of youth to prepare for a role in adult society. The introduction of the elective system, the establishment of state universities with facilities for bringing specialized knowledge and training to all classes of people, and the impact of science and technology on daily living, all have operated to shift the emphasis toward the practical and vocational.

Yet in contrast to the predictions of classical scholars the results have not been disastrous; on the whole the rise of technical, professional, and graduate schools has been wholesome. The changes have not come about without loss, but the democratic principle of the right of each citizen (and student) to shape his own destiny has been advanced and the way opened for each to proceed as far as he cared to go. Furthermore, in the process, higher education has returned to its original Greek concept of training for life in the current times in contrast to the aloofness and meditation of medieval scholasticism.

It is with a continuation of this century-old trend that the present communication is concerned. The dichotomy that exists within our universities between liberal and specialized education represents in reality the conflict between the concepts of cultural discipline and education toward vocations. It has been the contention of the writer that the two viewpoints are not divergent if

<sup>6</sup>R. Hofstadter and C. DeWitt Hardy, *The Development and Scope of Higher Education in the United States of America* (New York: Columbia University Press, 1952), Part One.



viewed in the light of basic aims, and that some new form of unity and continuity might offer distinct advantages.

Several centers around which this unity might be built have been suggested. Those having most direct bearing on the problem relate to the continuity which the student himself brings in his quest for a career and to common elements in every course of study that could lighten and perhaps shorten his path. To make full use of the driving forces behind the quest, the student needs to have freedom, within limits, to determine the direction of his efforts and to elect his studies without the obstacles set up by the present block system of education. Furthermore, a new awareness of common values inherent in all studies is needed within our faculties. This should be in terms, not of subject matter or discipline, but of human psychology and the principles of growth and learning.

Developing a new degree of continuity and unity within higher education will undoubtedly be difficult, but it is not impossible. The obstacles to change lie in part in charters and state regulations but even more in tradition and reluctance to embark on an uncharted course. The common aspirations of each teacher, each department, each school became obscured in the confusion of a large organization and are replaced by misunderstandings, mistrust, self-defense, and isolation. Much of the conflict between professional and liberal education has its origin here, for in spite of the fact that an arts college may be located on a campus with numerous professional schools, little opportunity exists for exploration of common interests. Until some way is found to bring more unity of

purpose into the thinking of faculties, progress is likely to be slow. Perhaps the greatest need of the moment is to define first steps that might be taken and some practical means to facilitate exchange of ideas and co-operative planning.

The suggestions that have been offered for implementing a search for better relationships between professional and liberal education are the outgrowth of a recent survey of the problems faced by several professions. They are not particularly original; nor are they inclusive. They are presented only as points of departure in full recognition of the fact that educational reform requires the rearing of a generation or two of scholars who will be increasingly freer from the prejudices and indoctrinations of the past.

### **Relaciones entre la educación liberal y la profesional**

La marcada oposición que hoy existe, dentro de las Universidades de este país, entre la educación "liberal" y la "profesional", es decir, la especializada, ha dado lugar a una corriente de insatisfacción. Los partidarios de la primera lograron en años recientes que se aceptaran sus puntos de vista en círculos cada vez más amplios, dedicándose con vigor creciente a la defensa de su sistema y oponiéndose a las intrusiones y usurpaciones de las ciencias, las especialidades y la técnica, así como a ciertas presiones económicas y sociales. Los "profesionales" por otra parte, respondiendo a las necesidades de una sociedad industrializada, y apremiados al tratar de mantener su sistema educativo a la altura del enorme desarrollo científico, se vieron obligados a aplicar un *curriculum* de estudios cada vez más técnicos. La tesis del autor de este trabajo es que las dos tendencias no son, en realidad, tan divergentes como parecen si son consideradas a la luz de los objetivos básicos comunes a ambas. El autor cree que, aunque no será fácil, es posible encontrar alguna forma nueva de unidad y continuidad de los dos sistemas de educación, y sugiere algunos medios para lograr ese fin.

# History of the Association of American Medical Colleges

## 1876-1956

DEAN F. SMILEY

Secretary of the Association of American Medical Colleges

**I**N A LETTER dated May 15, 1876 from Louisville, Ky., a general call was issued to the various medical colleges of the United States to send representatives to a convention to be held in Philadelphia on Friday, June 2, 1876. The object of the convention was "to consider all matters relating to reform in medical college work." The signers of the call were: J. B. Biddle, M.D., Jefferson Medical College, Philadelphia; William H. Mussey, M.D., Miami Medical College, Cincinnati; John T. Hodgen, M.D., St. Louis Medical College; J. Adams Allen, M.D., Rush Medical College, Chicago; W. T. Briggs, M.D., Medical Department, University of Nashville; J. M. Bodine, M.D., Medical Department, University of Louisville.<sup>1</sup>

### The first start

Present at this first meeting were representatives of 22 medical colleges who proceeded to elect Dr. J. B. Biddle of Jefferson Medical College, president and Dr. Leartus Connor of Detroit Medical College, secretary.

The following actions were taken at that first meeting:

(1) The convention proceeded to form a "Provisional Association of American Medical Colleges."

(2) A resolution was passed condemning the practice of reducing or remitting in individual cases the established fees of a college.

(3) A resolution was passed expressing the opinion that the completion of two consecutive courses of lectures in one year should not entitle students to become candidates for graduation.

(4) It was resolved "that no medical faculty should issue a diploma not bearing the graduate's name."

(5) It was recommended that all medical colleges offer three courses of lectures (presumably of at least 20 weeks each).

(6) It was agreed that "no degree in medicine should be conferred, under any circumstances, except, after an examination in person of the candidate upon all the branches of medicine."

(7) A committee of three was appointed to confer by letter with the various colleges, invite their views, and draft a constitution and by-laws for a permanent Association of American Medical Colleges.<sup>1</sup>

At the call of President J. B. Biddle, the "Provisional Association of American Medical Colleges" held

its second meeting June 2, 3, and 4, 1877 at the Palmer House, Chicago, Ill. "The call invited all colleges represented at the meeting of the Association held June 1876,—and all chartered medical colleges in the United States recognized as 'regular' by the colleges already represented in the Association."<sup>2</sup> Present were representatives of 15 of the 22 colleges represented at the first meeting and representatives of 11 additional colleges. Five additional colleges sent letters approving the objects of the Association.

At this meeting a constitution, by-laws, and Articles of Confederation were adopted. Important among the many provisions of these documents were the following:

1. "The name of this Association shall be the American Medical College Association."

2. "The objects of the Association shall be the advancement of medical education in the United States, and the establishment of a common policy among medical colleges in the more important matters of college management."

3. "To be eligible for graduation from a member college the student, among other requirements, (a) must file a satisfactory certificate of having studied medicine for at least three years under a 'regular' graduate or licentiate and practitioner of medicine, in good standing, (b) must file the proper official evidence that, during the above-mentioned three years, he has matriculated at some affiliated college or colleges, for two regular sessions, and in the course of the same—has attended two full courses of instruction on the seven topics mentioned in Article 2 (Anatomy, including dissections, Physiology, Chemistry, Materia Medica and Therapeutics, Obstetrics, Surgery, Pathology and Practice of Medicine)" (c) "must have passed a personal examination before the branches of medicine mentioned in Article 2."

The following officers were elected: President, J. B. Biddle, Jefferson Medical College of Philadelphia; Vice-President, N. S. Davis, Chicago Medical College; Secretary and Treasurer, Leartus Connor, Detroit Medical College.<sup>3</sup>

#### **Moving rapidly toward higher standards**

The 1878 meeting of the American Medical College Association was held at the Buffalo Medical College on June 3 with representatives of 15 colleges present. A resolution looking to the setting up of a "register" of American Medical Colleges was passed.

The following year at the meeting in Atlanta, Ga., a formal plan for medical college registration was adopted as follows:

"RESOLVED, That the Secretary of the Association be, and is hereby directed to furnish once in each year to each and every college member, and to each affiliated college, a printed list of college members and affiliated colleges, the diplomas and tickets of which may be recognized by the college members and affiliated colleges; and also to furnish to college members and affiliated colleges a printed list of those colleges (not including irregular colleges) of the United States, that have applied for membership, and have been rejected or expelled from the Association, the diploma and tickets of which are not to be recognized by college members and affiliated colleges; and also to furnish, with said list of rejected colleges not to be recognized, the dates at which said colleges had been excluded from membership of the Association, and after which the diplomas and tickets of said colleges, are not to be recognized."<sup>3</sup>

The 1880 meeting was held May 31 in the Lecture Room of the College of Physicians and Surgeons of New

York City and was attended by representatives of 25 schools. Presiding was Dr. S. D. Gross of Jefferson Medical College.

A report of the Committee on Medical Colleges was adopted and the Secretary was "instructed to notify the Colleges whose announcements are defective in any respect whatever, of the particular defects noticed in the report of the Committee on Medical Colleges."

The report of the Committee on a plan of registration of Medical Colleges was adopted. This report, among other things, stated that "the minimum length of time required for gaining an adequate knowledge of medicine should be not less than three years, and that at least one-half of each of these years should be spent in a proper medical college." It continued, "And this makes it necessary that the medical colleges, to be capable of performing their functions properly, should extend their annual term of active and obligatory instructions to six months of each year."

Amendments to the Articles of Confederation requiring three full courses of lectures as a preliminary requisite for conferring the degree of doctor of medicine were finally adopted. It is interesting to note, however, that of the 25 colleges represented at the meeting only 20 voted for these amendments.<sup>4</sup>

The same officers were elected for another year viz. President, Dr. S. D. Gross; Vice-President, Dr. N. S. Davis; Secretary, and Treasurer, Dr. Leartus Connor.

At the meeting held May 2, 1881 in Wilkinson's Hall in Richmond, Virginia, representatives of only 18 colleges were present.

A report of the Committee on Medical Colleges revealed

(1) that 48 medical college ca-

talogues were found to conform with Association requirements, 16 did not.

(2) that "in all the essential elements of a medical college, a very considerable number of colleges (22) surpass the requirements of the Association."

Officers elected for the new year were: President, J. M. Bodine of the University of Louisville; Vice-President, W. T. Briggs, University of Nashville and Vanderbilt; Secretary and Treasurer, Leartus Connor of Detroit Medical College.<sup>5</sup>

There were present at the 1882 meeting held in the Medical College of Ohio in Cincinnati, representatives of only 11 medical schools.

"Since it was first proposed to require three terms instead of two as a requisite for graduation, the following colleges have deemed it best to withdraw from membership in the Association: Bellevue Hospital Medical College; College of Physicians and Surgeons of New York; Jefferson Medical College of Philadelphia; Medical Department of the University of Vermont; Dartmouth Medical College of New Hampshire; Rush Medical College; Medical Department, Iowa State University; Louisville Medical College; Kentucky Medical College; Medical Department, University of Louisville; Medical College State of South Carolina."<sup>6</sup>

#### **The break-up of the Association**

The following officers were elected at the 1882 meeting: President, W. W. Seeley of the Medical College of Ohio; Vice-President, Deering J. Roberts of Nashville Medical College; Secretary-Treasurer, Leartus Connor of Detroit Medical College. The loss of so many founding members had, however, proved a serious blow to the new organization and no annual meeting was held during the years 1883 through 1889. So far as our records go the Association was dead.<sup>6</sup> The new organization had tried to raise standards too rapidly.

### The second start

On March 20, 1890 the following circular was issued by the professional representatives of the various medical colleges of the city of Baltimore, and sent to representatives of the medical colleges of the United States.

"To the Medical Colleges of the United States: The following Baltimore Medical Schools, University of Maryland, Baltimore Medical College, College of Physicians and Surgeons, Baltimore University, Woman's Medical College of Baltimore and the staff of the Johns Hopkins, having met for the consideration of reforms urgently needed in the system of medical education hitherto in operation in this country, after a full discussion of this most important subject, have come to the conclusion that it is not expedient, nor indeed practicable for the medical schools of any state to assume alone the responsibility of adopting advanced methods. Yet fully convinced of the pressing need of a change and earnestly desirous to see it consummated, they are unwilling to let matters rest longer as they are without at least an effort on their part to improve them. They have determined, therefore, to issue this appeal to the medical schools of the United States for their cooperation in inaugurating a national advance. Fully aware of previous ineffectual efforts in this direction, they yet realize that times have greatly changed since these efforts were made, and they believe that a repetition of them at this time would have a good prospect of success. The approaching meeting of the American Medical Association, drawing delegates, as it will, from every part of the country, offers a good opportunity for convening those who are interested in the contemplated change. We therefore invite you to join with us in holding a conference for the full consideration of 'Medical Education in this country and Measures for its Improvement,' and we request that you will appoint, at your earliest convenience, one or more delegates from your faculty to represent it at a meeting to be held at Nashville, Tenn., on May 21, 1890, at 3 P.M. It is requested that delegates should be instructed, as far as possible, as regards the wishes of their faculties upon the various measures now proposed in connection with advances in medical education, in order that definite results may be arrived at with the least possible delay and trouble. The following subjects are considered as most likely to come up for discussion:

1. Three Years Course of Six-Months Sessions.
2. Graded Curriculum.
3. Written and Oral Examinations.

4. Preliminary Examination in English.
5. Laboratory Instruction in Chemistry, Histology and Pathology.

A. Friedenwald, M.D., President  
Eugene F. Cordell, M.D., Secretary  
on behalf of the Baltimore Faculties.

Baltimore, March 20th, 1890

Please notify Dr. Eugene F. Cordell, No. 2111 Maryland Ave., Baltimore, Md., of the action you may take regarding this Circular."

In response to the above circular, representatives of a majority of the 'regular' medical colleges of the United States convened in the senate chamber of the Capitol at the City of Nashville, Tennessee, at the hour designated.<sup>7</sup>

It is interesting to note that practically all of the colleges that had resigned from the original American Medical College Association were represented at the reorganization meeting and became members under the new name of Association of American Medical Colleges even though the new constitution and by-laws required members to insist upon a minimum of three years for the medical course. Some 66 medical schools sent representatives to one or more of the meetings 1890-1892. Dr. N. S. Davis of Chicago Medical College, who was vice-president of the original Association and president at the annual meeting of 1879, served as president of the reorganized association from 1891 through 1894.

### Moving slowly toward higher standards

Having learned by sad experience that attempting to raise educational standards rapidly resulted only in disagreement and loss of unity between the member colleges, the Association's moves toward higher standards were this time more carefully considered. It should be noted, however, that the National Confederation of State Medical Examining and Licensing Boards had taken the in-



initiative and in 1891 required a minimum of three years of medical training.<sup>26</sup>

At the 1894 meeting in San Francisco with 21 of the 71 member colleges represented, the Constitution was amended to include the following:

"Sec. 1. Colleges, members of this Association, shall require of all matriculates an examination as follows:

1. An English composition in the handwriting of the applicant of not less than 200 words, said composition to include construction, punctuation and spelling.

2. Arithmetic—fundamental rules, common and decimal fractions, and ratio and proportion.

3. Algebra—through quadratics.

4. Physics—elementary—(Gage).

5. Latin—amount equal to one year's study as indicated in Harkness' Latin Reader."

"Sec. 2. Graduates or matriculates of reputable colleges, or high schools of the first grade or normal schools established by State authority, or those who may have successfully passed the entrance examination provided by the statutes of the State of New York, may be exempted from the requirement enumerated in Section 1."

"Section 4. . . . Candidates for the degree of M.D. in 1899, or thereafter, shall have pursued the study of medicine for a period of four years, and attended at least four courses of lectures of not less than six months duration each. It is provided, however, that the following classes of students may apply for advanced standing:

(a) Graduates of recognized colleges and universities that have completed the prescribed course in chemistry and biology therein.

(b) Graduates and matriculates of colleges of homeopathy.

(c) Graduates and matriculates of colleges of eclectic medicine.

(d) Graduates and matriculates of colleges of dentistry requiring two or more courses of lectures before conferring the degree of D.D.S. or D.M.D.

(e) Graduates and matriculates of colleges of pharmacy.

(f) Graduates and matriculates of colleges of veterinary medicine."

All students shall be required to comply with the provisions of the entrance examinations and prove their fitness to advanced professional standing, by an individual examination upon each branch below the class, he or she may desire to enter."

The Secretary was authorized to cancel the registration of those colleges "that desired to withdraw their membership owing to the adoption of the four years' curriculum."<sup>8</sup>

At the 1895 meeting, Baltimore, Maryland, May 5-7, Dr. N. S. Davis Jr. gave a report on the minimum requirements [for the four year study of medicine] See next page.

This report was based upon recommendations made by 22 subcommittees appointed by the General Committee on Minimum Requirements, November 30, 1894.<sup>9</sup>

At the annual meeting of 1898 in Denver, Colorado, President James W. Holland in the course of his presidential address reviewed the history of the Association beginning in 1876 and evaluated its contribution to improving standards as follows:

"The part played by the Association was of some consequence in the education drama we have witnessed in the last two decades. In the first act, the teachers openly recognized the fact that the medical education considered equal to the demands of the public and the profession during the first century of our history was no longer adequate. Up to that time as the public seemed content with the two years' course with its economies it was equivalent to suicide for a medical college to exact a longer period and a greater outlay."



MINIMUM REQUIREMENTS	Lectures or Recitation exercises	Laboratory
Anatomy, histology and embryology.....	250 hours	800 hours
Physiology .....	100 "	75 "
Chemistry .....	125 "	125 "
Bacteriology .....	25 "	150 "
Hygiene .....	25 "	
Medical Jurisprudence.....	12 "	
Medical Practice.....	200 "	Weekly clinical instruction
Surgery .....	200 "	Weekly clinical instruction
Surgery anatomy.....	100 "	Including laboratory work
Obstetrics .....	150 "	Including recitation
Ophthalmology & Otology.....	25 "	
Mental & Nervous.....	25 "	
Materia Medica & Therapeutics.....	125 "	
Dermatology .....	25 "	
Orthopedics .....	25 "	
Genito-urinary Diseases.....	25 "	
Pediatrics .....	25 "	
Physical Diagnosis.....	75 "	
Pathology .....	50 "	100 "
Laryngology .....	25 "	

"The college Association made the offer of a better system than was then in vogue, but most of the students and presumably their preceptors and advisers were content with the shorter and cheaper curriculum. Hence it was the interest of the public which demanded a more highly trained profession, and indirectly it was to the profit of the medical college that larger powers were given to the licensing boards. Most of these boards have taken the position that society requires that the doctor shall have availed himself of the higher facilities by taking a three years' course, and a few require a four years' course."

"The unseen powers work in many ways for the improvement of the world. Licensing bodies have been credited under legislative authority to carry on the work initiated by the colleges, and those who were active

in promoting this first movement to raise medical education to a higher plane are to be congratulated at the final outcome."

"Perhaps they builded better than they knew. It is certain that some of the credit of the very marked progress of the past 20 years belongs to the pioneers of 1876."

"It is a fact known to all that within the brief lifetime of this Association its members, with few exceptions, have passed from the lower stage of two-year schools without entrance examination to the much higher one of four-year schools with a preliminary qualification. The historian while noting a few known lapses from the standard set-up, may record that about this time a suspicion prevailed that the rules as to entrance requirements were more honored in the breach than in the observance. At the same time he must

recognize an advance all along the line, to an extent which, it is no exaggeration to say, is prodigious."<sup>10</sup>

The 1900 meeting in Atlantic City saw the constitution amended as follows:

"From and after July 1, 1900 no medical college, a member of this Association, shall permit a student to matriculate who does not possess a diploma from a high school, academy, normal school or college, giving a thorough preliminary education, or who has not passed a thorough examination in all branches usually taught in such schools."<sup>11</sup>

The meeting of 1902 at Saratoga Springs, N. Y., was devoted to a symposium on admission problems. Recognition was given to the American Medical Association's Committee on Education's first report on the relative standing of the graduates of the various American medical schools in the State Board Examination.<sup>25</sup>

1903 saw Dr. Fred C. Zapffe elected Secretary-Treasurer of the Association and authorized to visit and make a detailed study and report on each member college.

At the 1904 meeting in Atlantic City, Dr. Zapffe reported that he had visited nine member colleges. A questionnaire study of all medical colleges in the United States and the Philippines revealed the following facts:

Number of schools:	
Regular medical schools.....	128
Homeopathic medical schools.....	19
Eclectic medical schools.....	10
Physiomedical schools.....	3
Nondescript medical schools.....	1
Total	161

Length of medical course:	
4 years of 6 months each.....	6 schools
4 years of seven months each.....	19 "
4 years of 7½ months each.....	2 "
4 years of 8 months each.....	23 "
4 years of 8½ months each.....	1 "
4 years of 9 months each.....	15 "
	66

Medical college fees:

Vary from \$35 a year to \$200 a year.

Entrance requirements:

Those of the AAMC.....	41 schools
High school diploma.....	8 "
Those of their state board of medical registration....	9 "

Notice was taken of the establishment by the American Medical Association of its Council on Medical Education with Dr. Arthur Dean Bevan as its first chairman in 1904.<sup>12</sup>

At the meeting of April 10, 1905 in the Great Northern Hotel, Chicago, Dr. Zapffe reported on the visitation of eight more member schools by the Committee on Visitations and Inspection, and a standard curriculum of 4000 hours was adopted. President Samuel James of University Medical College of Kansas City stated in his presidential address, "—in my opinion the day of unworthy medical schools is past and that it is only a matter of a few years more when they will be swallowed up by the larger institutions or cease to exist entirely—." It was announced that the first annual Conference on Medical Education under the auspices of the newly established AMA Council on Medical Education would be held in Chicago, in April 1905.<sup>25</sup> It was also announced that the National Confederation of State Medical Examining and Licensing Boards had adopted as its standard the AAMC's standard curriculum.<sup>13, 26</sup>

At the meeting of 1906, Dr. Zapffe reported nine more member schools visited and the first two issues of the Bulletin of the AAMC published. The Association voted that henceforth a matriculation blank would be filed in the Association office for every student matriculating in medicine. It was announced that the Council on Medical Education of the AMA was undertaking a school-by-school survey of all medical schools in the United States under the direction of Dr. N. P. Colwell, Secretary of the Council.

The year 1907 saw the following resolution passed by the AAMC. "No time credit shall be given to holders of a bachelor's degree, but subject credit may be given on satisfactory examination. Four years of residence in a medical college shall be required of all candidates for the degree of doctor of medicine." This same year saw the AMA's first classification on an A B C basis of the medical schools they had inspected.<sup>14</sup>

The presidential address by Dr. Henry B. Ward of Nebraska at the 1908 meeting in Cleveland, included the following:

"Even though it must remain a purely advisory body and have no legal status, the Council on Medical Education of the AMA will undoubtedly exercise a strong, indirect control over medical schools by its schemes of reports and inspections and by scattering broadcast the results of their inspections."

"The greatest single difficulty in the way of progress in medical education is undoubtedly poverty."

"All the evidence at hand indicates a surplus of medical schools in our country, and all agencies join in demanding the elimination of the unfit. No action will add greater strength to the forward movement in medical education than weeding out such as cannot justify their existence."

"..... the four great influences which are molding the medical education of today each have their own limitations as well as their spheres of influence; ..... the highest interests of society demand more perfect coordination of their aims and the fullest cooperation to the exclusion of all matters of distrust or differences between them."

Dr. Fred Zapffe delivered a paper on "The Equipment of a Medical College."

The Committee on Syllabus reported on the teaching of histology, embryology, materia medica and pharmacology, chemistry, gross anatomy, physiology and bacteriology.

The Association:

1. Adopted the schedule of equipment as recommended by Dr. Zapffe.

2. Empowered officers to invite high grade medical schools of Canada and the United States to seek membership.

3. Enlarged the Committee on Syllabus.

Announcement was made of the beginning of the Carnegie study of the medical schools with visitation by Dr. Flexner of the Carnegie Foundation and Dr. Colwell of the the AMA Council on Medical Education. It was also announced that the National Confederation of State Medical Examining and Licensing Boards had adopted the minimum medical school equipment list recommended by the AAMC.<sup>15</sup>

At the 1909 meeting in New York City, Henry S. Pritchett, Ph.D. President of the Carnegie Foundation for the Advancement of Teaching said:

"We have at the present time nearly as many medical schools in this country as exist in all the rest of the civilized world. Most of these institutions are commercial in character and are practically found to keep low standards in order to live."

"It is clear that if the rights of the public are to be conserved, medical education must be lifted off the commercial basis and real standards must be enforced."<sup>16</sup>

A recommended curriculum for the work of the first two years was presented by the Committee on Syllabus.<sup>16</sup>

### **The impact of the Flexner report**

The 1910 meeting was held in Baltimore, Md. with 33 of the 49 Association's members represented.

Dr. William H. Welch of Johns Hopkins delivered an address deprecating efforts to standardize the curriculum.

Abraham Flexner reported after completion of his survey: "Fifteen of the AAMC members are operating on a standard from one to four years in advance of the minimum of the Association. Thirty-five institutions are not in general enforcing the minimal requirements of the Association."

The Judicial Council of the Association was authorized to order inspection of any member college reported on adversely by the Council on Medical Education. [Of 140 medical schools visited, the Council on Medical Education had listed 68 as class A (worthy), 38 class B, 34 class C (hopeless).]

The subcommittee on Curriculum for the Clinical Years presented its recommendations.<sup>17</sup>

### **Enforcing minimum standards by joint action**

During the period 1911 through 1922 the AAMC, met each year in Chicago either just before or just after the Council on Medical Education and Hospitals and the Federation of State Medical Boards (founded in 1912)<sup>20</sup> held their Annual Congress on Medical Education and Licensure.

In 1911 the AAMC instructed its Judicial Council to confer with the Council on Medical Education and Hospitals and the Carnegie Foundation, "to establish a proper standard for medical schools that can be applied practically at this time."

In 1912 the AAMC abolished its Judicial Council and established in its stead an Executive Council of

which Dr. W. J. Means was the first chairman.

Of twenty-four schools classified by the Council on Medical Education and Hospitals in 1913 as "Class A plus," 20 were in AAMC membership, two had applied for membership and one had expressed the intention of applying; of 39 "Class A" schools, 24 were in membership, five had applied for membership. Six members of the AAMC were classified by the Council on Medical Education and Hospitals as "Class B." Visitations were ordered to all six of these schools.

At a joint meeting of representatives of the AAMC and C. M. E. & H. held March 22, 1913 it was agreed that henceforth students before admission to medical college must have a preliminary college year of at least 32 weeks and including physics, chemistry, biology, and German and French.<sup>18</sup>

In 1914 reports were made on visits to the six member institutions listed as Class B by the C. M. E. & H. One institution was dropped from membership, the others were advised and warned.

In 1916 it was agreed that after January 1, 1918, 60 hours of college credit (instead of the previous 30 hours) would be required for medical college admission.

In 1918, 56 member colleges were listed Class A, three Class B. The Federation of State Medical Boards agreed to accept the list of schools accredited by the AAMC and the C. M. E. & H. Joint medical school inspections with the Council on Medical Education and Hospitals were begun in October 1919. The meetings of 1920 and '21 were held jointly with the Council on Medical Education and Hospitals and the Federation of State Medical Boards.

At the 1922 meeting Dr. Irving Cutter of Nebraska reported that the

average cost of medical education to the student was \$787.93 to \$1,027.77, the average tuition was \$187.16. At that same meeting a report of the Committee on Curriculum (Hugh Cabot, chairman) concerned itself with "attempting to mitigate the rigidity of the recommended curriculum." The decision was made to meet henceforth at member medical schools.<sup>19</sup>

#### **Reacting against excessive standardization**

The years between 1923 and 1946 saw two studies of American medical education. The first of these was conducted 1925-1932, under the general sponsorship of the AAMC by the Commission on Medical Education. Chairman of the Commission was A. Lawrence Lowell, of Harvard. Director of Study was Willard S. Rappleye of Columbia. Treasurer was Fred C. Zapffe. The report published in 1932 compared medical education in the United States with that in other countries, pointed out the dangers of excessive efforts to standardize and sketched in broad terms the direction in which American medical education could most profitably go. The second study was made under the aegis of the Council on Medical Education and Hospitals of the American Medical Association. Over the years 1934-1939 Dr. Herman Weiskotten as Director of Study, with a representative appointed by the AAMC, visited every medical school in the United States and (upon specific request of the individual school) every medical school in Canada. On the basis of each visit a profile of the teaching program of the school was prepared and the strength or weakness of each component of the program was made apparent.

Throughout this period of 23 years

the Association was itself becoming much better organized to serve its members. The bulletin of the AAMC, starting publication as a quarterly in 1926, changed its name to the *Journal of the Association of American Medical Colleges* in 1928, and became a bi-monthly in 1929. The first Applicant Study based on matriculation blanks of all students registering in the United States medical schools was published in 1926. The first Student Accomplishment records were sent to the 200 colleges sending their students into medicine in 1929. The American Medical Colleges Aptitude Test was first offered on the same day in representative arts colleges all over the country in 1931. The home office of the Association was moved from 25 East Washington St. to 5 South Wabash Ave., Chicago and the Secretary (Dr. Fred Zapffe) was provided with filing space and adequate secretarial help in 1932. The regular inspection of the member colleges on order of the Executive Council was resumed in 1937.

With the diploma mills and proprietary medical schools eliminated, the emphasis on minimal standards became less marked and innovation and experimentation began to play a more important part. President Charles P. Emerson's presidential address of 1923 was on "The Danger of the Stereotyped Curriculum." O. H. Perry Pepper gave a paper at the 1924 meeting on "Experiences With Medical Clinics To The First Year Classes." In 1925 all delegates to the Annual Meeting had an opportunity to visit classes in session at Harvard, Boston University and Tufts. Two papers dealing with "Correlation Between Laboratory and Clinical Teaching" were given at the 1928 meeting. G. Canby Robinson read a "A Survey of Several Educational Experiments in American University



Medical Colleges" at the 1930 meeting in Denver.<sup>20</sup>

With the regular classification of the medical schools by the C. M. E. & H. and the acceptance of this classification by the Federation of State Medical Boards, there was a feeling among many of the medical schools that they were being controlled and standardized too rigidly and by agencies whose major interests were quite outside the field of medical education. The report of the Commission on Medical Education in 1932 did much to correct this situation but it did not eliminate the problem. In 1942, however, a very helpful step was taken in the formation of the Liaison Committee on Medical Education.<sup>21</sup> This Committee was to consist of three representatives from the AAMC and three from the Council on Medical Education and Hospitals of the AMA. It was expected to meet several times a year, name its representatives to make up the visiting teams to jointly conduct the scheduled school visits of the year and discuss jointly the reports on the schools visits. This device was designed to insure that representatives of the medical schools and representatives of the practicing medical profession played an equal part in visiting and evaluating the individual medical schools. There were those in the AAMC who were unhappy about this arrangement because they felt that the representatives of the medical schools should play a dominant role not a co-equal one in medical school evaluation. The joint arrangement adopted in 1942 did however have the advantage of guarding against both the "guild control" of the profession and the "ivory-tower control" of the medical educators.

**Sponsoring essential services and conferences**

The years 1946 through 1952 were

a period of rapid growth and greatly increased activity for the Association both internally and in its outside interests. 1946 saw the establishment of the Committee on Audio-visual Education with Dr. Walter Bloedorn as chairman, and the Committee on Student Personnel Practices with Dewey Stuit as its first director of studies. In that same year the Association participated in founding the National Society For Medical Research, to combat the misguided efforts of the anti-vivisectionists.

1947 witnessed the Association's awarding of the first Borden Award in the Medical Sciences, the first administration of the Association-sponsored Medical College Admission Test, and the appointment of four representatives to a joint planning committee (with the C. M. E. & H.) for the survey of medical education.

The following year saw Dr. Zapffe's retirement and the appointment of Dr. Dean F. Smiley as Secretary, and Dr. John Deitrick as Director of the Survey.

The Association home office staff was rapidly expanding and in 1949 the home office was moved to 185 North Wabash Ave., Chicago 1, Ill. to provide space for its 25 employees and the files of the Association. In that same year Dr. Joseph Hinsey ("and such others as he might select") was appointed to represent the Association at a meeting of university presidents February 11, to consider the formation of a National Fund for Medical Education. J. M. Stalnaker became the second Director of Studies for the Committee on Student Personnel Practices on September 10.

In 1950 the name of the Journal was changed to the Journal of Medical Education, the first edition of the handbook "Admission Requirements of American Medical Colleges" was published and the Association voted



to co-sponsor a conference on curriculum design and evaluation in the teaching of psychiatry in medical schools. Dr. John Mc K. Mitchell was named co-chairman of this conference.

Approval of Association co-sponsorship of a conference on the teaching of preventive medicine in medical schools was voted in 1951 and Dr. George Packer Berry named chairman of a committee to bring in recommendations regarding a series of Teaching Institutes to be organized by the Association. 1952 saw the Association's premedical requirements for member colleges raised to three years (for all but exceptional students), Association leadership in the establishment of the National Intern Matching Program, and the initiation of an Association-sponsored Medical Education for National Defense program in five schools.

#### **Reorienting the Association to the needs of medical teachers**

1953 was an especially significant year for the Association since it marked the establishment of Individual Memberships (as distinguished for Institutional Memberships) in the Association; the holding of the first of the series of Teaching Institutes, the shift in the Journal from bi-monthly to monthly publication, and the publication of the Association's "Objectives of Undergraduate Medical Education."<sup>22</sup>

The report of the survey of medical education was published in two volumes, Deitrick and Berson's "Medical Schools in the U. S. at Mid-Century" and Severinghaus, Carman & Cadbury's "Preparation for Medical Education in the Liberal Arts Colleges." The former report was based upon visitation of half of the U. S. medical schools. The latter re-

port reflected the findings made in the visitation of 115 liberal arts colleges. Though they did not have the impact of the Flexner Report they stand in history as the first report of a study of medical education in this country made jointly by representatives of the AMA and of the AAMC.

1955 saw the incorporation of the Association and approval of plans for the building of a central office at Ridge Ave. and Central St., Evanston, Ill. The first longitudinal study of a whole entering class (that entering in Fall '49) was published in the November 1955 issue of the Journal of Medical Education.

The membership of the Association in 1956 was as follows: Institutional Members 82, Affiliate Institutional Members (in Canada & the Philippines) 12, Individual Members 1500, Sustaining Members 7.

Its budget was as follows:

Executive Director's Office \$29,192.50  
Secretary's Office \$67,630.00  
Journal and Publications \$82,465.00  
Medical Audio-Visual Institute \$36,000.00  
Committee on Educational Research and Services (formerly the Committee on Student Personnel Practices) \$154,562.50.  
Total \$369,850.00.

#### **A look into the future**

The organized medical profession through its American Medical Association and its Council on Medical Education and Hospitals has made tremendous contributions to medical education in the United States. Without the AMA's drastic classification of medical schools 1905-1907, followed by the Carnegie Foundation's Flexner Report of 1910 the much needed reform and revamping of medical education in this country would have been undoubtedly much delayed and perhaps less thorough-going than was the case. Of great importance too, has been the

AMA's continuing contribution through its Journal's Educational Number, through its leadership in medical school visitations and evaluations, through its evaluation of internship and residency training in United States hospitals since 1912, and through its study of post-graduate courses offered.

The Federation of State Medical Boards has contributed significantly to American medical education by giving the force of law to strengthened requirements and higher standards as soon as their worth has been convincingly proved.

The values that have in the last 50 years come out of the cooperation of medical educators with practitioners of medicine and with state medical examining boards have been such that there can be little doubt of this cooperation continuing and expanding. It would appear, however, that as the medical colleges of the country grow in numbers and strength and develop more fully their potentialities as research centers and as professional schools closely integrated into the graduate programs of their parent universities, there will be a growing demand from the medical school teachers and administrators that their Association equip itself to play an even more active role than it has played in the past in setting up objectives, maintaining minimum standards and fostering innovation and experimentation in medical education. As the Association moved into its new Central Office in Evanston in January 1957 it brought in as Executive Director a physician and teacher with experience both as a medical school dean and a university president. The member institutions voluntarily doubled their annual dues. A number of the philanthropic foundations have been

generous in providing funds for essential services, studies and conferences. The future of the Association would appear to be assured as one of steadily increasing service to medical education.

#### REFERENCES

1. Proceedings of the Association of the Representatives of American Medical Colleges. Held at Philadelphia, June 2, 3, 1876. Detroit, Free Press Book and Job Printing House, 1877.
2. Proceedings of the Provisional Association of American Medical Colleges. Held at Chicago June 2, 1877. Detroit, Free Press Book and Job Printing House, 1877.
3. The American Medical College Association—Third Annual Meeting, Held at Atlanta, Ga., May 3-5, 1879. Detroit, Free Press Book and Job Printing House 1879.
4. The American Medical College Association—Fourth Annual Meeting. Held at New York City, May 31-June 1, 1880. Detroit, Post and Tribune Job Printing Company 1880.
5. The American Medical College Association—Fifth Annual Meeting. Held at Richmond, Va., May 2-4, 1881.
6. The American Medical College Association—Sixth Annual Meeting—Held at Cincinnati, Ohio, May 16, 1882. Detroit John F. Eby & Company, Printers, 1882.
7. Bulletin. The Association of American Medical Colleges. St. Paul. H. M. Smyth Printing Company, 1892.
8. Bulletin of the American Academy of Medicine, Easton, Penn. Lafayette Press, No. 19, February 1894.
9. Association of American Medical Colleges Report of Committee on Syllabus. Chicago Journal of American Medical Association. June 29 and July 6, 1895.
10. Bulletin of the American Academy of Medicine. Vol. III No. 8, 1898.
11. Transaction of the Association of American Medical Colleges—1900. Bulletin of the American Academy of Medicine, Volume V. No. 4, Jan. 1901.
12. Association of American Medical Colleges—Minutes of the 14th Annual Meeting—Held at Atlantic City, New Jersey, June 6, 1904. Press of AMA Chicago.
13. Association of American Medical Colleges. Minutes of the 15th Annual

Meeting. Held in Chicago April 10, 1905. Press of the AMA Chicago.

14. Association of American Medical Colleges. Proceedings of the 17th Annual Meeting. Held at Washington, D. C., May 6, 1907. Press of AMA Chicago.

15. Association of American Medical Colleges—Proceedings of the 18th Annual Meeting. Held at Cleveland, Ohio, March 16-17, 1908.

16. Association of American Medical Colleges—Proceedings of the 19th Annual Meeting. Held at New York, March 15-16, 1909.

17. Association of American Medical Colleges—Proceedings of the 20th Annual Meeting. Held at Baltimore, Maryland, March 21-22, 1910.

18. Association of American Medical Colleges—Proceedings of the 23rd Annual Meeting. Held at Chicago, February 26, 1913.

19. Association of American Medical Colleges—Proceedings of the 32nd Annual Meeting. Held at Chicago, March 6-7, 1922.

20. Minutes of the 41st Annual Meeting of the AAMC, October 14-15-16, 1930. School of Medicine, University of Colorado, Denver, Colo. Office of Secretary, 25 East Washington St., Chicago, Ill.

21. Association of American Medical Colleges. Minutes of the Proceedings of the 53rd Annual Meeting. Held in Louisville, Ky., October 26-28, 1942. Office of the Secretary, 5 South Wabash Ave., Chicago, Ill.

22. Association of American Medical Colleges. Minutes of the Proceedings of the 64th Annual Meeting, October 26-28, 1953. Atlantic City, N. Y. Office of the Secretary, 185 North Wabash Ave., Chicago, Ill.

23. Association of American Medical Colleges. Minutes of the Proceedings 66th Annual Meeting, October 24-26, 1955. Swampscott, Mass. Office of the Secretary, 185 North Wabash Ave., Chicago, Ill.

24. Articles of Incorporation and By-

Laws of the Association of American Medical Colleges As Amended October 25, 1955. Office of the Secretary. 185 North Wabash Ave., Chicago 1, Ill.

25. Victor Johnson, M.D.; "A History of the Council on Medical Education and Hospitals of the American Medical Association." Reprinted from "A History of the American Medical Association, 1847-1947," W. B. Saunders Company, Philadelphia, 1947.

26. Walter L. Bierring, M.D.; "Medical Licensure after Forty Years." *Federation Bulletin*, Chicago. The Federation Press. Vol 43, No. 4, April 1956.

### Historia de la "Association of American Medical Colleges"

Dean F. Smiley, Secretario de la *Association of American Medical Colleges*, traza en este artículo el desarrollo de esta organización desde su establecimiento provisional en 1876 hasta el día de hoy. El autor, al evaluar las contribuciones que dicha Asociación ha hecho para elevar el nivel de la Educación Médica de los Estados Unidos, destaca la fructífera cooperación que durante medio siglo ha existido entre el profesorado y la profesión médica, organizada en la *American Medical Association*. Esta cooperación, dice el autor, ha de continuar y hacerse aun más estrecha en el futuro. A medida que crezca el número de Colegios de Medicina en el país, y desarrollen éstos sus potencialidades en el campo de la investigación y de la enseñanza, crecerá la demanda de que la *Association of American Medical Colleges* desempeñe un papel más activo aun que en el pasado en la determinación de objetivos de la Educación Médica, nivel de ésta y promoción de innovaciones y experimentación. Con la generosa ayuda de algunas Fundaciones filantrópicas, "el futuro de la Asociación", concluye Dean Smiley, "parece asegurar un servicio constantemente incrementado para la Educación Médica".

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Separatas de este artículo, en español, podrán obtenerse si son solicitadas por un mínimo de 25 lectores.

# Editorials and Comments

## Language Problems of Foreign Physicians

**M**ANY OF THE 3,000 or more foreign physicians who come to the U. S. annually for postgraduate training in American medicine have a serious language handicap: they may have studied English in their own countries, but they have often had no experience in hearing and speaking the language—the two most important skills of all to master if they are to benefit from the kind of informal instruction that characterizes much of our hospital teaching. When the complete screening program proposed by the Cooperating Committee on Evaluation of Foreign Medical School Graduates begins to operate, the medical director will receive help in all phases of screening candidates, including their language facility. Meanwhile, however, there is much that can be done by individual medical directors who are aware of the recent advances that have been made in teaching English as a foreign language. Materials are available for testing and screening that make sense to non-experts.

There are several widely used tests, linguistically sound, which, correctly applied, can indicate which physicians are ready for graduate training and which ones must first concentrate full-time on learning English. Then too, some of our universities offer intensive English courses which can accomplish remarkable improvements in as short a time as eight weeks. Finally, for the foreign house staff officer making poor adjustments because of language handicaps, there are several remedial English courses and English training aids. Details of these new developments are listed below.

### 1. PRE-ACCEPTANCE ENGLISH SCREENING EXAMINATIONS.

Several reliable examinations are widely used in university testing services in the U. S. and in many United States' embassies and information services overseas. If medical educators know what these tests are and how to interpret the scores, they will considerably lessen the risk of accepting candidates whose poor English will inhibit their medical studies. Three of the best are:

a. **TEST OF AURAL COMPREHENSION.** Devised by the English Language Institute of the University of Michigan to test the student's ability to understand spoken English (which inevitably involves recognition of vocabulary and structural signals.) The student listens to a series of sentences, which are spoken in natural, colloquial style. First he chooses answers among pictures which illustrate the meaning; then he chooses among multiple written answers. In many ways, the student's ability in aural comprehension is the most important single fact for the doctor to know: for it indicates exactly how well the student will be able to follow lectures and oral directions. Any score less than 80 per cent would be risky.

b. **DIAGNOSTIC TEST FOR STUDENTS OF ENGLISH AS A FOREIGN LANGUAGE.** Developed by Dr. A. L. Davis who directs the

American Language Center of American University in Washington, D. C., to test structure and vocabulary. There are 150 multiple-choice questions. It is completely objective and can be scored quickly. The answer sheet has a carbon, and the answers are printed on the undersheet. The test has value in making gross distinctions—those students above 130 may have considerable reading fluency; those below 115 might be seriously questioned. Its most serious handicap is that it does not distinguish those students who need oral-aural training—which is exactly the information medical schools screening candidates might be most interested in finding out.

c. **EXAMINATION FOR THE CERTIFICATE OF PROFICIENCY IN ENGLISH.** Developed by Dr. Robert Lado at the English Language Institute of the University of Michigan. The test employs paper-and-pencil techniques only to measure pronunciation, grammatical structure, recognition and production vocabulary, and contextual reading. The test is administered through U.S.I.A. Offices throughout the world; and the test booklet is returned to the University of Michigan for scoring. The student who receives a satisfactory mark is issued a Certificate of Proficiency. The passing score is sufficiently high to guarantee real achievement in the language.

2. **INTENSIVE ENGLISH TRAINING COURSES.** Since students need to acquire proficiency in spoken English as rapidly as possible, they should try to enroll in intensive courses; by far the best opportunities are offered in those universities which have a full-time program in English as a foreign language. Some of the outstanding courses are listed:

a. English Language Institute, University of Michigan, Ann Arbor, Michigan.

b. Institute of Language and Linguistics, Georgetown University, Washington, D. C.

c. American Language Center, Columbia University, New York City

d. American Language Center, American University, Washington, D. C.

e. English Language Program for International Students, New York U., New York City.

3. **REMEDIAL OR SUPPLEMENTARY ENGLISH TRAINING.** The residency director who discovers a language handicap after the foreign student has been accepted might find numerous facilities available on his own or nearby university campus. Since courses are often found in various departments (English, speech, modern languages), the wisest plan would be to speak directly with the Foreign Student Adviser. Many campuses already have an efficient testing service that will determine whether the student should (a.) drop out of hospital training and concentrate full-time on learning English in an intensive course; or (b.) take a remedial course in English for foreign students given on the local campus; or (c.) study by himself. Although this latter is a poor alternative, the student could be advised about presently available (and linguistically sound) texts and records that would make his self-learning more efficient.

In the event that he would like further information about language problems and materials and courses available, the medical educator will find the following addresses highly useful:

(1) U. S. Department of Health, Education and Welfare (Office of Education), Washington 25, D. C.



(2) National Association of Foreign Student Advisers, New York University, 15 Washington News, New York 3, N. Y.

(3) Institute of International Education, 1 East 67th Street, New York 21, N. Y.

(4) American Council on Education, 1785 Massachusetts Ave., N. W., Washington 6, D. C.

(5) American Council of Learned Societies, 1219 16th St., N. W., Washington 6, D. C.

(6) English Language Institute, 1522 Rackham Building, Ann Arbor, Michigan

If the English language handicaps of foreign physicians are discovered and corrected before they begin their training in our hospitals, the benefits to us and to them will be manifold: they will be able to learn American medical techniques faster and more easily, and we will be able to send them back to their countries better trained and happier. Disregard of this language handicap in the past has resulted in frustration for foreign physicians, for patients, for American medical educators, and for governmental agencies that are anxious to do everything possible to improve medical standards in free nations around the world.

*William Slager, Ph.D., department of English; and Carter M. Ballinger, M.D., division of anesthesiology, University of Utah.*

## Medical Student Scholarship and Loan Funds

SCHOLARSHIP AND LOAN FUNDS for medical students are listed only in the catalogues of the individual medical schools, and no one has had any very accurate idea of what these funds totalled. Last year, however, the Council on Medical Education and Hospitals of the American Medical Association brought the figures together for the first time and the report makes very interesting reading.<sup>1</sup>

For the 77 medical schools answering the questionnaire, the total sum annually available for scholarships in 1955-56 was \$2,427,139. The total sum annually available for loans was \$4,108,879.

The most important finding was that only 75 per cent of the funds annually available for scholarships and only 29 per cent of the funds annually available for loans was utilized in the college year 1955-56.

In attempting to determine if scholarship and loan funds were really going begging, the Student American Medical Association made inquiry of its chapter presidents and received reports from 30 schools which indicated that in those 30 schools there were over 1500 medical students who were at the time of the inquiry in need of loan funds ranging from a few hundred dollars to over \$3,000, and they were having difficulty in getting such funds from commercial sources.<sup>1</sup> It should be pointed out, however, that these SAMA figures were based on the assumption that loan funds could be made available at an interest rate of only 2 per cent and with no requirement for co-signers, endorsers or collateral.

If these studies paint the true picture, it would appear that though only 75 per cent of annual medical college scholarship funds and 29 per



cent of annual loan funds are being currently utilized, large numbers of medical students stand in real need of loan funds.

The seeming contradiction in the findings of the two studies is easily explained when the origin and operation of these funds in the scattered medical schools of the country are looked into. Many of the scholarship and loan funds are restricted by the terms of the gift which endowed the fund, to "sons of alumni," "residents of the county," "students of Scandinavian origin," etc. Many of the schools with the largest scholarship and loan funds have the smallest proportion of students in need of financial assistance. Loan and scholarship committees in some schools make their functions so well known that practically all available funds are well utilized every year. In certain other schools little effort is made to make known the available scholarships and loan funds, and very limited utilization results.

At the present time there are but three national foundations that give special attention to the financial needs of medical students, and their resources are sharply limited. They are the Joseph Collins Foundation, 15 Broad St., New York 5, N. Y.; the National College Student Foundation, Inc., 122 East 42nd St., New York 17, N. Y.; and the Student American Medical Association Foundation, 510 N. Dearborn St., Chicago 10, Ill. The W. K. Kellogg Foundation has contributed generously to the loan funds in many of the medical schools as have their alumni bodies.

Since it is extremely important that the financing of a medical education for hard working, well qualified students be made easy and on generous terms, is this matter of adequate loan funds not one that deserves serious study in every medical school of the country? And if additional funds are needed is this not a matter which would have a strong appeal to local clubs and similar organizations? D.F.S.

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1. R. F. STAUDACHER: "The Misplaced Monies of Medical Education," *The New Physician*, June 1957.

## **A New Public Health Service Research Training Program**

**B**EGINNING IN SEPTEMBER 1957 funds will be made available to the 82 schools of medicine, dentistry and osteopathy who have agreed to participate, to provide a number of outstanding students who have passed their freshman year with an opportunity to withdraw from their regular class for a year and devote that year to research work instead.

The purpose of this new program is to give research training and opportunities to 140 undergraduate students a year, with the hope that this training at an early point in the student's life will interest more students in a career in investigation and increase their effectiveness in research regardless of what field of activity they eventually enter.

The schools are in position to offer participants in this program full tuition and a stipend of up to \$3200 a year, with an allowance of \$350 per year for each dependent.

This new program is an extension of the regular research fellowship program administered by the Public Health Service's National Institutes of Health, Bethesda, Md., through its Division of Research Grants.

For many years a number of the medical schools have been offering

a limited number of short-term "student fellowships" carrying a stipend of approximately \$100 a month. They have proved useful in broadening the medical training, in stimulating an interest in research, in providing support during the preparation of a thesis for the degree Doctor of Medicine with Honor. Many of these Fellows have also registered as candidates for the M.S. or Ph.D. degree, with the approval of the dean of their graduate school. This new program of the Public Health Service should enable additional schools to provide this type of educational opportunity and it should give slight additional support to similar programs already in operation. D.F.S.

### **\$3 billion health bill**

More than \$3 billion—a rate of nearly \$10 million per day—of the nation's health care bill will be paid in 1957 through voluntary health insurance programs, according to the Health Insurance Council.

This estimate was made by the Council, based on the results of its annual survey of health insurance coverage in the United States for 1956. Benefit payments to help cover the cost of hospital, surgical, and medical care last year amounted to \$2.9 billion, an all-time high.

It is estimated that as of May 1, 1957, some 118 million persons were protected against the cost of hospital expenses through voluntary health insurance programs, 103 million were covered for surgical expenses, 67 million had policies covering regular medical expenses, and 10 million were insured against major medical expenses. These figures mean that over 70 per cent of the total U. S. civilian population today is protected by some form of voluntary health coverage.

It is interesting to note that during the year, the number of people covered by hospital care insurance rose by 8 million over the year before, the number of people covered by surgical expense insurance increased 9 million and persons covered for regular medical expenses rose 9 million.

# NEWS DIGEST

## Executive Council Meeting

An Executive Council Meeting of the AAMC was held in Chicago on May 25, 1957. The report of the meeting is as follows:

Approval was given to the Administrative Committee's decision to set up three committees to screen displaced Hungarian medical students for possible admission to U. S. medical schools this fall. Dr. Smiley reported that screening committees had been set up in the New York area under the chairmanship of Dr. Dayton Edwards, secretary of the faculty at Cornell Medical College, in the Chicago area under the chairmanship of Dr. John Cooper, assistant dean at Northwestern University Medical School, and in the San Francisco area under the chairmanship of Dr. Malcolm Watts, assistant dean at the University of California School of Medicine. Screening started immediately and was to be completed according to plan by June 15, 1957. Lists of the 44 students currently considered eligible for application and the list of schools reporting places available were sent to each of the screening committees.

A survey made of vacant places in the third year classes of medical schools, as the basis for possible AAMC policy in the establishment of two-year medical schools indicated there is a total of 336 vacant places in the third year classes. The decision was that the question of the advisability of developing new two-year medical schools should be brought before the general membership through one of the Association's Standing Committees.

Dr. Darley reported that there is approximately \$26 million available in the medical schools to match funds of the Federal government for school construction and Dr. Hinsey reported that the Committee on Financing Medical Education, as well as others,

are still working toward obtaining an increase in the overhead allowance from 15 per cent to 25 per cent on research grants to medical schools.

A summary of meeting places for the next Annual Meeting was given. The following three have been approved: Chalfonte-Haddon Hall, Atlantic City, N. J., October 21-23, 1957; New Ocean House, Swampscott, Mass., October 13-15, 1958, and Edgewater Beach, Chicago, Ill., October 26-28, 1959.

Dr. Stanley W. Olson, chairman, reported on the work of the Committee on Medical Education for National Defense. He recommended the continued support of the National Advisory Committee to the Selective Service System. He also reported that students will have to continue to register each year through age 35, but according to the new bill registration after graduation will not be required.

The Committee on Internships, Residencies and Graduate Medical Education recommended that a study be initiated of internships connected with medical schools. After discussion it was suggested that a pilot study might be made of two or three hospitals and use of this information might be made in soliciting funds. The Executive Director was instructed to implement this project.

The Council voted to accept in principle the suggestion of a President's Advisory Council, and to refer this matter to the Administrative Committee for final drafting procedures.

Dr. Darley reported on the scrambled image TV project the University of Kansas is working on for post-graduate instruction. It was decided that the AAMC would be glad to participate in the experiment. Dr. Darley will be responsible for establishing the relationships with both the University of Kansas and with the pharmaceutical house concerned.

## **MEND News**

At a meeting of the MEND Program Subcommittee in New York City on June 2, the following medical colleges were unanimously nominated for MEND affiliation as of January 1, 1958:

Albert Einstein College of Medicine; Bowman Gray School of Medicine; Columbia University College of Physicians and Surgeons; Howard University College of Medicine; State University of Iowa College of Medicine; University of Miami School of Medicine; Northwestern University Medical School; University of Oklahoma School of Medicine; University of Rochester School of Medicine; and University of Virginia School of Medicine.

Dr. George V. Byfield, associate dean and previously MEND Coordinator at the University of Illinois College of Medicine, has turned his local MEND responsibilities over to Dr. Walter S. Wood of the department of preventive medicine. Dr. Byfield will continue as a member of the MEND Program Subcommittee.

The Army recently announced that spaces will be available again this year for MEND-school representatives who wish to attend courses in "Management of Mass Casualties" at the Army Medical Service School or at the Walter Reed Army Institute of Research. More detailed information has been sent to all MEND Coordinators.

## **American Heart Association**

Dr. John H. Peters has been named Assistant Medical Director for Research. Dr. Peters, who has been clinical associate professor of medicine at Emory University since 1955, will be responsible for administering the national research support program conducted by the American Heart Association and its affiliates. Before joining the association, Dr. Peters also served as instructor in biochemistry at Emory University and as director of medical research and assistant chief of medicine at

Atlanta's Veterans Administration Hospital.

## **National Library of Medicine**

The building to house the new National Library of Medicine will be constructed on the grounds of the National Institutes of Health in Bethesda, Md. Nearby are the NIH Clinical Center and the Navy's Bethesda Hospital Medical Center.

## **Industry and National Health**

Why corporations contribute to national health agencies, what the money goes for and the problems involved in the complicated matter of corporate giving were disclosed for the first time in a survey conducted by the National Better Business Bureau. Findings of the survey were discussed at an all-day meeting dedicated to "Industry's Role in the National Health Field" at the Hotel Biltmore, New York, N. Y. on June 12.

The study was undertaken in cooperation with the Solicitations Panel of the National Better Business Bureau, composed of representatives of 284 large, small and medium-sized firms selected to constitute a cross-section of American industry. Executives from more than 200 of these organizations attended the meeting.

Presiding at the morning session was Dr. VERNON W. LIPPARD, dean of Yale University School of Medicine, as chairman. Dr. HOWARD A. RUSK, director of the Institute of Physical Medicine and Rehabilitation of New York University-Bellevue Medical Center, spoke on "What is the National Health Problem?" at the morning session, and Dr. Robert B. O'Connor, medical director of the United States Steel Corporation gave an address on "How the National Health Problem Affects Industry."

## **WHO Assembly in United States in 1958**

The World Health Assembly, governing body for the World Health Organization, has accepted an invitation to hold its session in the United States next year, but no city has yet been selected. Action was

taken by the Assembly at its meeting in Geneva. The acceptance was received by Dr. Leroy E. Burney, surgeon general of Public Health Service, who heads the U. S. delegation to Geneva.

#### **Student American Medical Assn.**

A new position—that of public relations director—has been created and William Barr has been selected to fill it. Mr. Barr will also be managing editor of the organization's publication, *The New Physician*, and director of its foundation program. *The New Physician* will step up to a 12-month-a year publication from the present nine-month-a year sched-

ule in the new 1957-58 publication year.

#### **Brooke Army Medical Center**

Officer students of the Army Medical Service School's 39-week course in hospital administration left the Center following graduation ceremonies June 21, for their first key administrative assignments in military hospitals throughout the world.

Through the school's affiliation with the graduate school of Baylor University at Waco, 32 Army and Air Force officers and one medical officer from Pakistan were candidates for their Master's Degrees in Hospital Administration. This is the highest percentage of degree candidates since 1951, when the program was started.

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## **College Briefs**

#### **Baylor**

Dr. NEIL R. BURCH, assistant professor of psychiatry, has been awarded the Legion of Merit for medical research he performed for the Air Force. An Air Force captain for six years, Dr. Burch was cited for research involving computation of data regarding human stress and fatigue, by developing a new system for breaking down data recorded from brain waves.

Four professors have received \$68,533 in research grants from the American Cancer Society: Dr. ARTHUR KIRSCHBAUM, professor and chairman of anatomy, \$47,742; Dr. DONALD A. RAPPOPORT, assistant professor of biochemistry and radiology, \$8,000; Dr. ROBERT WILLIAMS, associate professor of microbiology, \$5,325, and Dr. CHARLES SPURR, clinical professor of medicine, \$7,466.

#### **Chicago Medical**

Dr. DONALD L. KIMMEL, professor of anatomy at Temple University, has

been appointed professor and chairman of the department of anatomy. Dr. JOHN J. SHEININ, president of the school, is relinquishing this position in order to devote full time to administrative duties.

#### **Cincinnati**

Dr. MORTON HAMBURGER, associate professor of medicine, has just returned from a month's lecture tour of European medical schools and research centers. His tour included visits to centers at London, Munich, Turin, Vienna, Zurich and Geneva. At the fifth annual Italian Conference on Chemotherapy at Turin on June 6, Dr. Hamburger read a paper on Clinical Experience with Sulfamethoxypyridazine.

For possibly the first time since its founding in 1819, the university's college of medicine conferred its degree with special honors at commencement in James Gamble Nippert Memorial Stadium. The distinction was won by Joey Mathew Pirrung,



fifth-generation medical man in his family and second-generation Cincinnati medical college graduate. He received the doctor of medicine degree with special honors in biological chemistry.

#### **Duke**

Dean W. C. DAVISON has been named a member-at-large of the Educational Council for Foreign Medical Graduates. Dean Davison will represent the U. S. Defense Department on the Council. He is currently a member of the Executive Reserve in the office of the Assistant Secretary of Defense (Health and Medical). The Council, established to provide better opportunities for foreign medical graduates to study as interns or residents in American hospitals, is sponsored jointly by the American Hospital Association, American Medical Association, the Federation of State Medical Boards of the United States and the Association of American Medical Colleges.

Dr. JOHN B. HICKAM, associate professor of medicine, has been honored for outstanding service to the Department of the Air Force. He is one of three recipients of Exceptional Service Awards presented recently at Patrick Air Force Base, Fla. by Secretary of the Air Force James H. Douglas Jr. Dr. Hickam's work with the Scientific Advisory Board concerned the psychological and physiological problems of aircraft crews flying at supersonic speeds and extreme altitudes.

#### **Albert Einstein**

The New York State Interdepartmental Health Resource Board has awarded a grant of \$45,000 to the department of pediatrics, in sponsorship with the departments of rehabilitation medicine and psychiatry for the establishment of a Mental Retardation Diagnostic and Parent Counselling Clinic with Dr. LAWRENCE T. TAFT as director.

#### **Harvard**

Dr. WILLIAM B. CASTLE, director

of the Thorndike Memorial Laboratory and the Second and Fourth Medical Services at the Boston City Hospital, has been named the first George Richards Minot Professor of Medicine. The professorship honors the late Dr. George R. Minot, co-discoverer of the use of liver and liver extracts in the treatment of pernicious anemia and one of the three to share in the 1934 Nobel Award in Physiology and Medicine. Dr. Minot served as professor of medicine from 1928 until his death in 1950.

#### **Indiana**

The 10th Annual Alumni Day was celebrated on May 8, with Dr. WARD DARLEY, executive director of the Association as principal speaker. Dr. A. A. Kramer, South Bend, Ind. and Dr. A. J. Blickenstaff, Peoria, Ill., two of the three living members of the school's first graduating class in 1907, were in attendance.

Postgraduate medical education is being expanded under the direction of Dr. W. DONALD CLOSE, associate professor of medicine, aided by a faculty committee. An augmented series of courses is contemplated, supplemented by clinics and special lectures, utilizing both members of the faculty and visiting authorities.

#### **Johns Hopkins**

A ten-year grant totaling \$1,056,000 has been made to the school of hygiene and public health by the National Drug Company of Philadelphia, a subsidiary of the Vick Chemical Company, New York. The grant, effective July 1, is for the support of a long-range medical research project and will be under the direction of Dr. WINSTON H. PRICE, associate professor of epidemiology and biochemistry. Dr. Price will become director of the newly-created division of medical ecology in the department of epidemiology. The new division has been established to train investigators and to carry out research, using combined clinical, field and laboratory studies in heart



disease and upper respiratory infections due to viruses.

### **Minnesota**

During the summer the faculty will lose three of its members. Dr. LEO G. RIGLER, professor and head of the department of radiology, has resigned effective June 30, to accept a position as visiting professor, department of radiology, the University of California at Los Angeles. Dr. H. O. PETERSON, clinical professor, has been named to succeed Dr. Rigler. Dr. J. ARTHUR MEYERS, professor, school of public health, retired on June 30, and Dr. HENRY E. MICHELSON, professor and director, division of dermatology, also retired on June 30. Dr. FRANCIS W. LYNCH, clinical professor, will succeed Dr. Michelson.

### **Missouri**

Ceremonies for the installation of the Gamma Chapter of Alpha Omega Alpha Honor Medical Society were held on Friday, May 24, at a special banquet in the Student Union Building. Principal speaker at the installation ceremonies was Dr. WILLIAM B. BEAN, professor and chairman of the department of internal medicine, the University of Iowa College of Medicine. Installation was made by Dr. WALTER L. BIERRING, National President of Alpha Omega Alpha, Des Moines, Iowa, and Dr. J. J. MOORE, National Secretary-Treasurer, Chicago, Ill.

### **New York Med. Coll.**

Doctors from South America, Canada and various sections of the United States attended the first American Postgraduate Assembly in Fertility and Sterility sponsored by the college. The Assembly, which opened May 20 and continued through May 30, is the first of its kind on a postgraduate level to be held in the United States. The faculty of the New York Medical College and 18 guest professors from North and South America made up the teaching staff. The course was designed primarily for physicians already inter-

ested in fertility and was conducted by the department of obstetrics and gynecology.

### **NYU-Bellevue**

Three physicians have recently been honored with national appointments in their chosen specialties. Dr. JOHN H. MULHOLLAND, George Davis Stewart Professor and chairman of the department of surgery, was elected president of the American Surgical Society; Dr. WILLIAM S. TILLET, professor and chairman of the department of medicine, was elected president of the Association of American Physicians and Dr. SEVERO OCHOA, professor and chairman of the department of biochemistry, was elected a member of the National Academy of Sciences.

Plans have been made by Rush H. Kress to create a fund to provide for a university chair of surgery in the postgraduate medical school. This professorship will be named after Rush H. Kress. In addition to the recent pledge of \$5 million toward the complete reconstruction of the former New York Post-Graduate Hospital, the Samuel H. Kress Foundation, during the past eight years, has given over \$8 million to the Post-Graduate Medical School at the university.

### **Northwestern**

Dr. TOM D. SPIES, chairman of the school's department of nutrition and metabolism and director of Hillman Hospital nutrition clinic at Birmingham, Ala., received the American Medical Association's 1957 distinguished service award. The gold medal and a citation of the physician's service to medicine and humanity was presented to him at a formal dinner when Dr. DAVID B. ALLMAN of Atlantic City was installed as the A.M.A.'s new president.

### **Pittsburgh**

The university will increase tuition rates for its school of medicine and graduate school of public health, beginning July 1. Tuition in the medical school will be increased from

\$750 a year to \$1,000. Tuition in public health will go from \$700 to \$960 a year.

#### **Rochester**

Dr. R. PLATO SCHWARTZ, who has been a member of the faculty since 1926, became emeritus professor of orthopedic surgery on July 1. Dr. Schwartz however, will continue to direct the medical school Gait Laboratory's program of research.

#### **Stanford**

Professor H. CORWIN HINSHAW flew to Moscow in June to speak before the U.S.S.R.'s Sixth All-Union Congress on Tuberculosis. Dr. Hinshaw was the only American attending the Moscow meetings held June 6-15 and was invited by Professor F. V. Shebanoff, chief of the organization committee for the Congress.

#### **Texas**

Dr. FREDERICK J. BONTE, formerly of Western Reserve University, has been appointed professor and chair-

man of the department of radiology. Dr. ROBERT S. STUBBLEFIELD has been appointed professor of psychiatry and chairman of the department. Dr. Stubblefield has been connected with the University of Colorado School of Medicine. Dr. CHARLES ASHWORTH, clinical professor of pathology, has been appointed professor and chairman of the department of pathology.

#### **Wisconsin**

The Kiekhaefer Corporation of Fond du Lac, Wisc., has made a grant of \$60,000 for the establishment of a new professorship in the department of medicine. The first installment for \$12,000 was recently accepted at a meeting of the Board of Regents. This amount will be given annually for five years. Dr. OVID O. MEYER, chairman of the department of medicine and Dr. JOHN Z. BOWERS, dean, will select the individual who will be known as the Carl Kiekhaefer Professor of Medicine.

### **British "Lagging" in Pharmaceutical Research?**

An editorial in the May 11, 1957 issue of the *British Medical Journal* commented on the fact that few of the recently introduced drugs were discovered in Britain, thereby acknowledging that they may be behind in pharmaceutical research.

Though there are many reasons for this, one of the more important is the fact that a man in Britain would probably refuse to leave a university post for a position with a pharmaceutical firm because the difference in salary would not be attractive enough, whereas an American firm will pay higher salaries. The British thus place pharmaceutical research in the hands of chemists.

The writer then suggested that if research could be done in the universities, there might be arranged a collaborative effort between the department of organic chemistry and the biological departments—biochemistry, microbiology and pharmacology. He further stated that such a collaboration is rare and such a suggestion would no doubt arouse opposition. Nevertheless, with the concentration of talent in the science departments of some universities, such a scheme might achieve great results.

# Audiovisual News

## **Ultraviolet TV Microscope for Cell Study**

Ultraviolet light is translated to visible light by means of color television in a new instrument developed by scientists at the Rockefeller Institute.

The instrument is called an ultraviolet, color-translating television microscope. The living cells are stained electronically with red, green and blue. Different cell materials absorb the different wavelengths and this selective absorption is translated into color so that the cell materials can be identified and located.

Two special features of the microscope are significant. It provides a higher magnification than visible light, and chemical compositions of cells which cannot be distinguished by visible light can be differentiated by the translated ultraviolet light. Further, dosage of ultraviolet is minimal because the television pick-up tube is sensitive and light is played on the cells for only short spurts.

## **An Aid for Speakers**

A small lectern or desk panel holds six prepared written messages which can be flashed on remotely by a chairman or assistant. The messages may be cues or warnings such as "Speak louder please," "You have five minutes left" and "Your time is up."

The device is called the Agenda-scope and information on it may be obtained from Corcon Inc., 1168—6th Ave., New York 36, N.Y.

## **Calendar of Film Festivals**

An International Calendar of Film Festivals, Contests and Awards has been prepared by the University Film Producers Association. The pur-

pose of the calendar is to "remind producers and sponsors that such-and-such a festival or contest does exist, that its showing and entry dates usually are so-and-so."

Copies of the calendar are available for \$1 (\$1.25 outside U.S.A.), Address orders to: Chairman, Festivals and Contests Committee, University Producers Association, 112 W. College Ave., University Park, Pa.

## **Medical Film Awards**

"Dynamics of the Tubercle" entered and produced by Kansas University School of Medicine, sponsored and distributed by Pfizer Laboratories, won the Golden Reel Award in the medical category at the Golden Reel Festival, an annual festival sponsored by the Film Council of America.

Silver awards went to two other medical films: "Stress and Adaptation Syndrome," entered, sponsored and distributed by Pfizer Laboratories, produced by Research & Scientific Films, Inc., and "Disorders of the Heart Beat," entered and produced by Churchill-Wexler Film Productions, sponsored and distributed by the American Heart Association, Inc.

Other entries selected for festival screenings were: "The Larynx and Voice—The Function of the Normal Larynx," The William and Harriet Gould Foundation; "An Aid to Therapy," Campus Film Productions; "Suppression of Lactation with Tace," Sturgis-Grant Productions, Inc.; "Microglia," Medical Audio-Visual Institute; "The Metabolic Insufficiency Syndrome—Diagnosis and Treatment," Fordel Films, Inc.; "Replacement Transfusion for the Treatment of Erythroblastosis Foetalis," Baxter Laboratories, Inc.; "Resuscitation for Cardiac Arrest," E. R. Squibb and

Sons; and "Preparing for Surgery," Sturgis-Grant Productions, Inc.

### Film Reviews

#### Resuscitation for Cardiac Arrest

17 min., sd., color, 16 mm., 1956.

Dr. Claude S. Beck, speaking from his desk, relates the need for "cardiac resuscitation fire drill" and "rapid restoration of the oxygen system" (Step 1). In Step 2, re-establishment of the heart beat, Beck emphasizes five "do nots" of procedure. On opening the chest and pericardium (of a fresh cadaver), various ways of massage are demonstrated. Epinephrine followed by massage is used for asystole in a dog's heart. With a fibrillating ventricle—"a state of (cardiac) convulsion"—procaine is employed, followed by electric shock and epinephrine. Since "every normal heart can be made to beat again," periodic practice with living dog hearts is strongly advocated. A predetermined course of prompt and determined action is suggested for all physicians.

This film is of great contemporary interest and importance, and it is proper that the most distinguished investigator and protagonist of cardiac resuscitation should be the prime actor. The content is dramatic, personalized, accurate per the author-narrator's opinions. Unfortunately, the surgeon is often shown to the exclusion of medical content, and words dominate the screen even where the visual content is obviously supercharged with potentialities.

For everyone in medicine, the importance of the film's material, its motivational merits, and its high current importance will make the film of real usefulness despite any failings as a visual medium. D.S.R. with KUMC Panel, February 1957.

**Audience:** Practitioners, students, surgeons.

**Production Data:** Sponsors: E. R. Squibb and Sons, Cleveland Area Heart Society; **Author-Narrator:** Claude S. Beck, M.D., Western Reserve University School of Medicine; **Producer:** Oreste Granducci; **Photography:** David S. Leighninger, M.D. and Kenneth Wolf.

**Distribution:** Film Library, E. R. Squibb and Sons, Squibb Building, 745 Fifth Ave., New York 22, N. Y.

#### Preparing for Surgery

22 min., sd., color, 16 mm., 1956.

A third year medical student goes to his first surgical assistantship. Details of his preparation are followed and exam-

ined: change to scrub suit, non-conductive shoes, cap and mask. Thorough hand scrubbing with pHisoHex is demonstrated, with tables showing bacterial reduction of this agent in contrast with soap. In the operating room the student is gowned by the nurse, dons rubber gloves, and keeps sterile as he waits. The patient is scrubbed and draped. The surgical team takes position, emphasizing the sterile back principle. A summary of the preparatory details is given.

This film presents the method of one university hospital, but seeks to make clear the underlying principles for gaining and maintaining an aseptic surgical field. The content is excellent. Presentation is craftsmanship and competent.

For information to nurses and students entering the surgical arena as participants for the first time, the film will provide a very useful orientation, despite any minor local differences which may prevail in individual hospitals. The Navy's ENEMY BACTERIA should prove to be a useful auxiliary film. D.S.R. with KUMC Panel, 1957.

**Audience:** Medical students, nurses.

**Production Data:** Sponsor: Winthrop Laboratories; **Scientific Supervision:** Charles K. Kirby, M.D., I. S. Ravdin, M.D., University of Pennsylvania; **Producers:** Sturgis-Grant Productions, Inc.

**Distribution:** Winthrop Laboratories, 1450 Broadway, New York 18, N. Y.

#### Embryology and Pathology of the Intestinal Tract

14 min., sd., color, 16 mm., 1953.

Part I, Embryology, shows rotation of the bowel and mesenteric artery, beginning with the four week embryo. The bowel develops a loop and returns to the abdominal cavity. Rotation of the cecum occurs. On a clay model the duodenal and cecal loops are shown in relation to the arterial supply. Part II, Pathology, demonstrates the mechanism of the thoracic stomach, persistence of the yolk stalk to produce a Meckel's diverticulum, development of obstructive bands and vessels, intussusception of a Meckel's diverticulum, and formation of a fecal fistula. With failure of abdominal retreat, omphalocele is seen. Reversal of colon rotation produces left-sided appendix and right paraduodenal hernia. The mechanism of volvulus is demonstrated.

This compact, highly simplified but accurate film is a fundamental orientation to those intestinal tract pathologies which are based on embryologic failures

or maldevelopments. The film is skillfully and competently produced, despite its too abrupt ending.

For medical students or others concerned with intestinal tract anatomy and pathology, the film will condense much material into a brief time; but it deserves repeated screenings for introduction, review or study. D.S.R. with KUMC Group, 1956.

**Audience:** Medical students, physicians, nurses.

**Production Data:** Sponsors: Michael J. Connell Charities, Mr. & Mrs. Benton Van Nuy, and Walter A. Schmidt; **Authors:** Lawrence Chaffin, M.D. and William H. Snyder, Jr., M.D., Department of Surgery, University of Southern California School of Medicine and the Los Angeles Childrens Hospital; **Producer:** Graphic Films Corp., Hollywood; **Director:** Lester Novros.

**Distribution:** Graphic Films Corp., 1618 North Las Palmas Ave., Hollywood 28, California. **Sale:** Medical Audio-Visual Institute of the Association of American Medical Colleges, 2530 Ridge Avenue, Evanston, Ill., **Rental:** \$7.

#### Disorders of the Heart Beat

19 min., sd., color, 16 mm., 1956.

The pattern of cardiac electrical discharge and muscular contraction is related to the ECG and phonogram. With animation of heart action, ECG's and phonograms, atrial and ventricular pre-

mature beats are analyzed; atrial and ventricular paroxysmal tachycardia are shown, terminated with carotid sinus pressure; atrial flutter with 2:1 and 4:1 block is contrasted with atrial fibrillation; conduction defects with 2:1, 3:1, 4:1 and complete blocks are analyzed.

This essentially all-animated exposition of four classes of cardiac arrhythmias is a methodical and simplified orientation prior to the use of oscilloscope, bench stethoscopes, tape phonograms and experience with patients. Easy, graceful and sometimes illumined animation developed with tasteful filmcraft characterizes this excellent film.

As an introduction to or review of certain key cardiac arrhythmias, the film deserves wide and long-term use with practitioners and students of medicine. D.S.R. with KUMC Panel, February 1957.

**Audience:** Medical students, practitioners.

**Production Data:** Sponsor: Wyeth, Inc., for American Heart Association. **Scientific Advisory Committee:** H. B. Buchell, M.D., L. S. Butterworth, M.D., H. H. Hecht, M.D., and T. Winsor, M.D.; **Production Supervisor:** Robert S. Warner, M.D.; **Producers:** Churchill-Wexler Film Productions, Inc.

**Distribution:** American Heart Association, Film Library, 13 East 37th Street, New York 16, N. Y.; Wyeth, Inc., 1600 Arch St., Philadelphia 3, Pa.

### Additions to MAVI Film Library

#### Active Anaphylaxis in the Mouse Sensitized with Bovine Albumin- Adjuvant Emulsion .....

\$4

8 min., sd., color, 16 mm., 1956.

This film demonstrates a method of sensitizing white mice with bovine albumin-adjuvant emulsion, with the subsequent intravenous challenge of the sensitized mice 28 days later. Shown are the significant signs of anaphylaxis ending in death. An experiment concerning the appearance and duration of fatal anaphylactic reactivity in actively sensitized mice is summarized.

**Producer:** Department of Audiovisual Education, Kansas University Medical Center; **Author:** Perry Morgan, Ph.D., Department of Microbiology, with U. S. Air Force Research Contract.

#### Danger at the Source.....

\$2

13½ min., sd., b&w., 16 mm., 1956.

Designed to gain private support for the nation's medical schools this film shows teachers, doctors and medical stu-

dents as they carry out the procedures of medical education.

**Producer:** Twentieth Century-Fox Films for the National Fund for Medical Education.

#### The Dynamics of the Tubercle.....

\$2

28 min., sd., color, 16 mm., 1956.

Connective tissue in a rabbit's ear, made visible by a plastic window, is inoculated with bovine tubercle bacilli and studied serially during the evolution of the tubercle and during chemotherapy. The comparative speed of primary and secondary infections is demonstrated as is the delicate balance between therapeutic success and failure. (Winner of 1957 Golden Reel Award in Medical Category, Film Council of America Film Festival.)

**Sponsor:** Pfizer Laboratories; **Producer:** Churchill-Wexler Film Productions; **Scientific Advisers:** Robert H. Ebert, M.D., and William R. Barclay, M.D., University of Chicago; **Director:** David S. Ruhe, M.D.



**Health Careers ..... \$2**

13½ min., sd., b&w., 16 mm.

A group of highschool students take a tour of health services. Thirty five different health workers, including a medical secretary, a physician in private practice and a hospital administrator are shown at their jobs.

The film is a career or guidance film designed to give a quick sampling of health occupations and to stimulate questions relative to alternative careers.

*Producer:* Wilding Picture Productions for National Health Council and supported by the Equitable Life Assurance Society.

**Left Colectomy for Carcinoma of the Rectosigmoid, with Periaortic Lymph Node Dissection and Early High Ligation of the Inferior Mesenteric Vein ..... \$6**

13 min., sd., color, 16 mm., 1956.

Two classic cases of carcinoma of the rectosigmoid are fused into a single operative sequence. An oblique lower left transverse incision exposes lesion and bowel. High ligation and division of the inferior mesenteric vein is followed by periaortic dissection beyond the ureters to the bifurcation of the iliac arteries. The transverse colon is sectioned at midportion along with a segment of the greater omentum, and the entire left colon to the rectum is dissected free and removed. The transverse colon is anastomosed to the rectum, the dissected area reperitonealized, and the abdomen closed. Colon specimens are demonstrated. The patients are seen postoperatively, and barium X-rays demonstrate functional intestinal tracts.

*Author:* Stanley R. Friesen, M.D., Ph.D., (Surg.), F.A.C.S.; *Producer:* Department of Audiovisual Education, Kansas University Medical Center.

**Neoplastic Astrocytes (Living Human Cells in Culture Series)..... \$3**

10 min., sd., color, 1957 (Sale: \$50).

Shows the characteristic features of astrocytes in astrocytomas, glioblastomas and astroblastomas. Colored Bodian preparations are shown for comparison with the living cells. The form, density and activity of neoplastic astrocytes and component elements are revealed. The film concludes with two typical astrocytes.

*Sponsor:* Abbott Laboratories; *Authors:* I. Costero and R. Barroso-Moguel, National University of Mexico and C. M. Pomerat, Tissue Culture Laboratory, University of Texas Medical Branch; *Producer:* Wynne S. Eastman for the Medical Audio-Visual Institute of the Association of American Medical Colleges.

**Normal Astrocytes (Living Human Cells in Culture Series)..... \$2**

10 min., sd., b&w., 16 mm., 1957 (Sale: \$25).

Shows the physical characteristics and activities of normal human and cat astrocytes as seen by means of time-lapse phase contrast photography. Typical movements of the membranes and perikaryal zone of human brain astrocytes, including multipolar astrocytes, are shown. Explants from the spinal cord of a cat show rays of optically dense cytoplasm forming circular rather than stellar elements. After several hours of photography these webbed portions are damaged, suggesting a morphological shift from the so-called "protoplasmic" to the "fibrous" form.

*Sponsor:* Abbott Laboratories; *Authors:* I. Costero and R. Barroso-Moguel, National University of Mexico and C. M. Pomerat, Tissue Culture Laboratory, University of Texas Medical Branch; *Producer:* Wynne S. Eastman for the Medical Audio-Visual Institute of the Association of American Medical Colleges.



# Book Reviews

## **The 1955 University of Utah Research Conference on the Identification of Creative Scientific Talent**

Calvin W. Taylor, Principal Investigator, University of Utah Press, Salt Lake City, 1956. \$3.

This paper-bound volume consists of a series of 22 reports originally presented at a three day conference devoted to the problem of the identification of creative scientific talents. The conference was sponsored by the National Science Foundation. More than 20 hours of tape recordings were transcribed and each speaker edited his own paper and the discussion which followed. The group was almost entirely composed of psychologists who, for the most part, were reporting on research in progress.

The conference itself was a major creative effort, reflecting the current *zeitgeist* to transport this vital area of interest from the speculations of the philosophical thinker to the experimentations of the methodologically rigorous psychometrician. The primary contributions and the discussions which followed range from the presentation of highly crystallized and refined techniques to the candid expression of admittedly "wild" ideas which are nevertheless stimulating and sometimes exciting. The research oriented reader will find it difficult to avoid becoming a participant himself, formulating his own hypotheses as the many provocative lines of thought are presented to him. Indeed, this is perhaps the best recommendation one can give a volume of this kind.

It is especially gratifying to note that although much of the material relates to the more traditionally recognized cognitive dimensions of creativity and scientific talents, some of the papers reflect the growing awareness of the crucial significance of the non-intellective aspects of personality and culture.

Unfortunately the reader who is especially interested in learning more about the medical scientist will disappointedly wonder about the almost exclusive focus upon achievement in

the physical sciences. There is a clear implication in this and other work that these talents may not be interchangeable. Scientific aptitude is indeed a multi-faceted phenomenon and it may well be that beyond the area of overlap there would be found fundamental differences between those who see the world of inanimate objects and abstract concepts as most challenging and those who are more interested in life processes and functions.

Of particular interest to the medical educator is the consistent—and by this time almost redundant—finding that in general the scientist is one who has a need to provide distance between himself and people. Studies reported here and elsewhere strangely suggest that a scientific orientation is one which is correlated with isolation from people and a general lack of interest in dealing with interpersonal dynamics. If this pattern is indeed applicable to the medical scientist may it not suggest the need for its more explicit recognition in terms of the apparent dichotomy between the "whole person" oriented clinician and the concept oriented researcher. One wonders if this factor has been sufficiently stressed in the development of student selection procedures.

Norman S. Greenfield, Wisconsin

## **Clinical Use of Radioisotopes**

William Beirwaltes, M.D., Philip C. Johnson, M.D., and Arthur J. Solari. W. B. Saunders Co., Philadelphia, 1957.

The present day knowledge concerning the clinical use of radioisotopes is condensed and categorized into a book of excellent organization. This book places in the hands of the medical radioisotope user an extremely useful tool.

The fundamentals of physics and instrumentation necessary for the proper use and understanding of isotopic procedures are presented in a simple and logical fashion.

Much of the book is justifiably concerned with the use of Iodine 131 and its numerous ramifications of clinical

application. The physiologic basis as well as the physical basis of the clinical tests and treatments are discussed in the same well organized manner characteristic of this book.

Other isotopes and their uses are discussed in proportion to their present day importance. These include both diagnostic and therapeutic procedures along with indications and contra-indications.

There are also very pertinent sections on the biologic effects of irradiation and on health physics. A fundamental knowledge of these timely subjects is certainly a basic requirement for every user of radioactive material of any form.

J. K. Isley Jr., *Duke Hospital*

#### **Practical Dermatology**

**Samuel M. Peck, M.D.,** with **Laurence L. Palitz, M.D.** Pp. 367 with 122 illustrations. McGraw-Hill Book Company, Inc.

This book presents briefly and clearly, a discussion of common dermatological diseases as met in practice. The book is intended for the general practitioner and for students. The authors, with this idea in mind, have clearly described diseases and lead the reader to an understanding of the conditions and to proper treatment. They started this book by giving some general remarks on diagnosis and treatment. The general discussion on treatment is too brief; however, treatment is adequately covered in the discussion on the particular disease. The authors pointed out the dangers of indiscriminate use of cortisone but also give its use in certain diseases. For a small volume, many dermatoses are covered: disease due to infectious agents, fungus, dermatitis, and

On page 460 of the June issue, in the review of *An Atlas of Anatomy* by J. C. Boileau Grant, the name of Williams & Wilkins, Inc., the publisher, was inadvertently omitted.

skin manifestations of vitamin deficiencies, endocrine diseases, and vascular disturbances. There are discussions on pre-cancerous and cancerous conditions of the skin, also psoriasis and a miscellaneous group consisting of Lichen Planus, Pityriasis Rosea, Sarcoidosis, Erythema Nodosum, and Amyloidosis Cutis. There is a section on venereal diseases briefly discussed and accepted therapy for these conditions given. This group includes: Syphilis, Chancroid, Granuloma Inguinale, and Lymphogranuloma Venereum. This book has 122 photographs illustrating the various diseases, charts giving differential diagnosis of skin conditions and an outline of nonvenereal eruptions, of penile lesions, scrotal lesions, and vulvar lesions. Also, a brief outline of common conditions affecting the buttocks and perianal regions. This book is surprising in the amount of information it gives for a small book. The information given is based on the authors' experience in the daily practice of dermatology. The authors write in a clear style which makes for easy reading.

Salvatore J. Messina, *Boston*



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1. Perkoff, G. T., et al.: J. Clin. Endocrinol. 14:531 (May) 1954. 2. Abramson, D., and Reid, D. E.: J. Clin. Endocrinol. 15:206 (Jan.) 1955. 3. Eichner, E.; Waltner, C.; Goodman, M., and Post, S.: Am. J. Obst. & Gynec. 71:1035 (May) 1956.

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• **SOCIAL AND PREVENTIVE MEDICINE:** Professor required to organize and head department. Excellent opportunity to collaborate in public health development of Saskatchewan. Records of universal hospitalization plan provide valuable research material. This medical school is committed to the study of medical care problems of Saskatchewan. Address: Dean of Medicine, University of Saskatchewan, Saskatoon, Saskatchewan, Canada.

• **RESEARCH BIOCHEMIST:** Preferably one recently graduated with a Ph.D. degree, for a Medical Center appointment with the possibility of a faculty appointment after period of probation. Salary range \$5,500 to \$6,000 per year, depending upon the qualifications. Duties are research in protein chemistry. No prior experience necessary. Address: V-57.

• **PEDIATRICS:** Full time clinical teacher for department with active student and house staff educational program. Person interested in clinical teaching as a career desired. Considerable small group teaching with less emphasis on lectures. Rank and salary dependent on qualifications. Address: V-58.

• **BACTERIOLOGISTS:** Openings for an assistant professor and an associate professor of bacteriology at a commencing salary of \$6500 to \$8500, depending on qualifications, with regular increments. Duties to include teaching, hospital and/or public health bacteriology and a program of research. Applications should include a curriculum vitae, a recent photograph and the names of three referees and should be sent to: Dean of Medicine, University of Alberta, Edmonton, Alberta, Canada.

• **ASSISTANT PATHOLOGIST:** To Dr. David R. Meranze, board certified or eligible; major general hospital; medical school affiliated; active teaching and research institution; highly qualified staff. Write to Albert Einstein Medical Center, Southern Division, Fifth and Reed Sts., Philadelphia 47, Pa.

• **TRAINEE IN CARDIAC CATHETERIZATION TECHNIQUES:** A position for a postgraduate trainee is available in the Cardiac Catheterization Unit. Stipend—\$3800 per year plus allowance for dependents. This laboratory is conducting research in conjunction with members of the department of surgery on extracorporeal circulation (pump-oxygenators) for use in cardiovascular surgery as well as other potential uses. It is also concerned in the study of vascular dynamics in various types of hypertension both in humans and in animals. Will provide generous experience in technique, procedures and application of cardiac catheterization. (State qualifications and outline curriculum vitae with first letter). Address: Dr. Raymond Gregory, Cardiac Catheterization Unit, University of Texas Medical Branch, Galveston, Texas.

• **PSYCHIATRIST:** Applications are being reviewed for Board Certified or qualified psychiatrist for university appointment involving medical student instruction and direction of Mental Health Clinic. Address: V-59.

• **PHYSIOLOGIST:** Vacancy for instructor or assistant professor on regular medical faculty. Five months of teaching to small classes in progressive program. Remainder of year is free for research in ample facilities provided, esp. in fields of cardiovascular or respiratory physiology. \$5,000-\$7,000. Address: Dr. Robert S. Alexander, Dept. of Physiology, Albany Medical College, Albany, N.Y.

• **APPROVED RESIDENCY IN PHYSICAL MEDICINE—**Three-year approved program in 1,110-bed general hospital, affiliated with Baylor College of Medicine. Excellent facilities, opportunities for research. Regular residency at stipend \$2,840-\$3,550; career residency, \$5,915-\$8,990. Write Manager, VA Hospital, Houston, Texas.

• **RESEARCH AND CLINICAL ASSISTANT:** Full-time. Boston, Mass. Qualified physicians interested in reproductive physiology. Training positions available in clinic concerned with infertility, medical and surgical gynecology, and obstetrics. Given biographical data and salary requirements. Address: V-60.

To aid in solution of the problem of faculty vacancies, MEDICAL EDUCATION will list persons and positions available, as a free service. The school department or person may have the option of being identified in these columns or of being assigned a key number for each position listed. Mail addressed to key numbers will be forwarded to the person or department listing the request.

Information for these columns should reach the Personnel Exchange, Journal of Medical Education, 2530 Ridge Avenue, Evanston, Illinois, not later than the 10th of the month which precedes the month in which the listings will appear.

## Personnel Available

• **INTERNIST-FULL TIME CLINICAL TEACHER:** 33. family; Exper: many phases teaching program with medical school, also private and county hospital. Special training in rheumatology, psychiatry and research. Leaving military service in June 1957. Desire opportunity to develop and direct medical education in private hospital, or continue prev. academic career. Address: A-266.

• **ZOOLOGIST:** Ph.D., 1954. General Biology, General Zoology, Embryology, Physiology, Oncology. Desires teaching and research position in basic science school or medical school for 1957. Address: Department of Biology, Brown University, Providence 12, Rhode Island.

• **MICROBIOLOGIST,** Ph.D., strong background in bacterial physiology, biochemistry, and medical bacteriology; interested in academic or full-time research post. Address: A-270.

• **CHEMIST-PHYSIOLOGIST:** Ph.D. in Org. Chemistry, recent M.S. in Physiology. Extensive experience in industrial pharmaceutical research. Publications, Patents. Desire position in medical research in academic institution. Address: A-271.

• **SURGEON:** Several years of cancer surgery. Original clinical research work. Societies. Publications. Languages. Board eligible. Presently holding senior staff position. Desired is preferably a full-time position allowing clinical activities and clinical research. Address: A-272.

• **DIPLOMATE AMERICAN BOARD OF SURGERY-F.A.C.S.** pending, age 32. Additional 1½ years training in cardiovascular surgery and research. Teaching experience at under-graduate and post-graduate levels in cardiovascular and general surgery. Publications. Desires research and teaching position. Available immediately. Address: A-273.

• **PHARMACOLOGIST:** M.D., Ph.D. (in pharmacology); 3 years teaching in a medical school and 7 years pharmacological research experience. Desires teaching and/or research position. Address: A-274.

• **ANATOMIST:** M.D., Ph.D. Presently Associate Professor but desires change of locale. Teaching experience in microscopic anatomy; research is histo and cytochemistry. Publications. Desires teaching-research or full time research position in medical center in upper mid-west or far west. Address: A-276.

• **JUNE 1957 Ph.D. in Biochemistry and Nutrition.** Research interest in cardio-vascular disease, specifically the amino acid composition of serum lipoproteins from normal and atherosclerotic patients. Teaching experience. Seeks full-time position. Address: A-277.

• **PHYSICIAN-BIOCHEMIST:** Training in internal medicine, engaged for past seven years in research in experimental diabetes and studies of insulin action. Now completing work for degree of Ph.D. in biochemistry. Desires appointment in department of biochemistry, physiology, medicine, or research medicine. Available January, 1958 at completion of present fellowship. Address: A-279.

• **OBSTETRICIAN-GYNECOLOGIST:** Aged 34, 8 years specialty training. Member of Royal College of Obstetricians and Gynecologists. wishes to emigrate to U.S. At present civilian consultant to U.S. Air Force in U.K. Interested in academic post where state licensure not immediately required. Four publications. Address: A-280.

• **INTERNIST, BOARD ELIGIBLE:** charity and university internship and residencies—D.N.B. —married—desires career academic position on medical school faculty—any phase of teaching, administration, research or admitting room supervision. Address: A-281.

• **PHYSIOLOGIST:** Ph.D., male, 35, married. Desires opportunity for research with or without teaching. Six years research experience in circulatory physiology. Teaching experience in medical and graduate physiology. Available September, 1957. Address A-282.

• **PHYSIOLOGIST-ENDOCRINOLOGIST:** Mature, male, Chicago Ph.D. Wide teaching, research, and research directing experience in Human, General, Endocrine, and Behavioral Physiology. Publications. Societies. Desires graduate or medical teaching position with ample time and facilities for research. Will attend Federation meetings. Address: A-283.

• **MICROBIOLOGIST:** M.S., University; Ph.D., Medical Sciences, Summer, 1957; 30, male, married. Three years teaching assistant in medical school course in microbiology. Four years research experience. Graduate studies include basic science course, except pharmacology, in first two years of medical school. Desires academic position with opportunity for research. Address: A-284.

• **MEDICAL LIBRARIAN:** M.A., M.S., male, 38, married. Now completing third year as head of library serving medical and dental schools and affiliated hospitals. Have reorganized procedures, hired and trained a staff to do the library's work. Now seek more responsible post in larger library. Address: A-285.

• **MICROBIOLOGIST:** Ph.D. background in medical microbiology, bacterial physiology, biochemistry, cytology, and drug effects. Four years' academic and industrial research experience. Desires teaching and/or research. Address: A-286.

• **PHYSIOLOGIST:** Ph.D. Currently teaching and research in college of veterinary medicine (5 years); past experience in zoology-physiology in liberal arts college (5 years); radiobiological experience — summer 1956; publications; desire academic or responsible research position. West or midwest preferred, but other locations considered. Present rank, assistant professor. Address: A-287.

• **MICROBIOLOGIST:** Ph.D., age 35, seven years medical school teaching experience. Desires teaching and research position. Main interests are in nutrition, metabolism, genetics, and the mode of action of chemotherapeutic agents. Address: A-288.

• **INTERNSHIP:** Age 40, certified by the American Board in Internal Medicine 1950. Rank, assistant professor of medicine in eastern medical school. Interested in metabolism and renal disease, but has broad training including most sub-specialties. Written and has had published about 30 manuscripts. Desirous of heading own section and instituting some organized clinical investigation, as well as clinical teaching. Address: A-289.

• **SURGEON:** An experienced British surgeon wishes a senior academic post. Undergraduate multi-prizeman and scholar in medical subjects. Qualifications: M.B., B.S., Honors, Durham, 1939; F.R.C.S. Edinburgh 1941. M.S. Durham, 1944; F.I.C.S. 1956. Experience: War service, surgical specialist, Royal Air Force. A senior general surgeon with senior academic career. Many practical research papers published. Address: A-290.

• **SURGEON:** M.D., Ph.D. Presently associate professor, large metropolitan medical school. Member of leading societies. Numerous publications. Desires geographical full-time position in medical school located in less populated area with opportunities for experimental and clinical research and teaching. Address: A-291.

• **MEDICAL BACTERIOLOGIST-Ph.D.,** excellent background of responsible research, teaching, diagnostic bacteriology and administrative experience in colleges, universities and hospitals. Desires position in teaching and/or research in medical school, as Bacteriologist-in-Charge of research in some area of medical bacteriology, preferably TB, or related position with opportunity for some independent research. Address: A-292.

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